A Review on the Role of Family Physicians in Early Detection and Management of Chronic Diseases

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Abstract: This review explores the critical role of family physicians in the early detection and management of chronic diseases. With the prevalence of chronic conditions escalating globally, family physicians stand at the frontline of healthcare, offering a unique advantage in managing these diseases due to their holistic and continuous care approach. The review emphasizes the importance of integrating family health history into patient assessments to enhance the early identification of at-risk individuals, thereby facilitating timely and effective interventions. Moreover, it examines the influence of socio-economic and environmental factors on disease progression and the effectiveness of primary care in mitigating the burden of chronic diseases. Through the lens of the Chronic Care Model and other primary care frameworks, this paper discusses strategies that aim to bolster the management capabilities of family physicians, offering insights into the complexities of handling multiple chronic conditions and highlighting the need for systems that prioritize proactive over reactive care.

Keywords: Primary care; Family physicians; Early detection; Early treatment; Chronic disease; Public health issues.

1. Introduction

Primary care providers commonly encounter patients who may be at risk for, or are already affected by, prevalent complex diseases like coronary artery disease, cancer, and diabetes [1-5]. Family health history is a significant indicator of a patient's risk for these diseases, and its collection can substantially improve the identification of at-risk individuals [4]. For instance, a woman with one first-degree relative with breast cancer has her risk of developing the disease increased by 1.8 times, and with two first-degree relatives, her risk nearly triples [6]. Notably, 82% of primary care patients have a familial risk for at least one common disease—including coronary artery disease, stroke, diabetes, breast cancer, colon cancer, or ovarian cancer [5, 7, 8]—and this risk modifies the preventative recommendations tailored to the patient. For example, based on family health history, 15%–20% of patients qualify for early colonoscopy screenings before the age of 50 years [8].

Over recent decades, the demographic of patients seen by family doctors has changed markedly. There has been a noticeable decrease in patients presenting with infectious diseases and an increase in those suffering from multiple chronic conditions. A substantial number of elderly Canadians, for example, suffer from at least one chronic disease, with many reporting three or more such conditions. Common chronic ailments include diabetes, hypertension, and arthritis. Despite numerous clinical guidelines, the complexity of managing multiple concurrent conditions is often not adequately addressed. These conditions may interact with each other, and factors such as socioeconomic status, environmental

influences, and health disparities can affect their progression [9]. A significant majority of Americans over the age of 65 suffer from at least one chronic condition. Women of all ages are more likely than men to experience chronic diseases, often in multiple forms. By 2012, about half of all adults had at least one chronic condition, and a quarter had more than one. In 2005, 133 million Americans were living with at least one chronic disease, a number expected to rise to 157 million by 2020. Moreover, the number of individuals with multiple chronic conditions was anticipated to grow from 63 million in 2005 to 81 million by 2020 [10, 11]. Chronic diseases are closely interlinked and persist throughout a person's life. Factors such as socioeconomic background, education, employment status, and environmental conditions play crucial roles in their prevalence. Addressing these foundational factors is essential for improving health outcomes and reducing disparities, as continuous support from wellness through to disease management is critical for the most vulnerable populations [12].

The role of family physicians in the healthcare system is pivotal, particularly in the context of an aging population and the increasing prevalence of chronic diseases. As primary care providers, family physicians are often the first point of contact for patients, placing them in a unique position to impact early detection and management of chronic conditions. Despite the growing burden of diseases such as diabetes, hypertension, and arthritis, there exists a gap in comprehensive literature that synthesizes the broad spectrum of family physicians' contributions towards managing these illnesses. With chronic diseases accounting for a significant portion of healthcare utilization and costs, enhancing the effectiveness of family physicians in early detection and management could lead to better patient outcomes and more efficient healthcare systems.

The objective of this review is to thoroughly examine the role of family physicians in the early detection and management of chronic diseases.

State of Chronic Diseases

Chronic diseases are increasingly recognized as a major public health challenge, affecting millions around the world, escalating healthcare expenses, diminishing quality of life, and causing premature death. The prevalence of chronic conditions is rising due to factors such as an aging demographic, lifestyle changes, and environmental influences. The World Health Organization (WHO) identifies chronic diseases like cardiovascular diseases, cancers, respiratory diseases, and diabetes as the top causes of death globally, responsible for 63% of all deaths [13].

Addressing chronic diseases represents a formidable challenge for healthcare systems globally, which are more accustomed to acute, episodic care rather than the long-term management required for chronic conditions. Chronic diseases require ongoing care and management, a role well-suited to the strengths of primary care, including continuity, coordination, and comprehensive care. Increasingly, there is a shift in health policy and medical practice towards enhancing systems that support sustained chronic care management, particularly through proactive primary care. Countries with strong primary care frameworks often report better health outcomes at lower costs [14].

Prevention and early diagnosis of chronic diseases

The concept of early intervention to preempt or slow the onset and progression of diseases, thereby reducing morbidity and mortality, is attractive to patients, physicians, and governmental bodies. This approach is embraced in the European Definition of General Practice/Family Medicine, which states that a family physician "promotes health and well-being both by appropriate and effective intervention". However, interventions that are not necessary can lead to harm and waste of healthcare resources [15].

Despite numerous studies endorsing interventions and a tendency to publish favorable outcomes, the eagerness to implement every proven benefit—often promoted by specialists in secondary care—may result in overlooking the risks associated with unnecessary interventions in practice. Physicians often overestimate the benefits and underestimate the risks of interventions [16]. Additionally, pressure from governmental institutions to meet international health targets, such as the NCD progress monitor indicators [17], can exacerbate this oversight in primary care settings. Moreover, misdiagnosis or delayed diagnosis is frequently cited as a prevalent mistake in primary care [18, 19]. Striking a balance between preventive and early diagnostic interventions, patient safety, and resource constraints poses a significant challenge in primary healthcare (PHC). While national targets are supported by the best

available evidence, the individual roles of general practitioners (GPs) and patients can be overlooked. Evidence-based medicine (EBM) is defined as the "conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients," combining the best external evidence with clinical expertise and patient preferences [20]. It is particularly crucial in primary care to respect patients' needs and expectations. Since many patients tend to overestimate the benefits of interventions and underestimate their risks [21], it is vital to educate them about the potential harms and benefits of interventions and to prepare them for inconclusive or unexpected test results, ensuring informed decisions are made [22].

A foundational principle of family medicine is its all-encompassing approach to healthcare. Family physicians adopt a whole-person perspective, addressing the physical, emotional, and social aspects of their patients' lives. This holistic method proves especially advantageous for those suffering from chronic conditions, which typically arise from complex causes and affect multiple areas of an individual's life [21].

Role of family physicians

Introduced in the 1990s, the Chronic Care Model (CCM) provides a framework designed to improve the management of chronic diseases within primary care by incorporating six critical elements across the individual, community, healthcare system, and provider organization levels. The model aims to enhance the infrastructure of care systems to better manage chronic diseases. Following the CCM, additional frameworks like the Patient-Centered Medical Home and The Ten Building Blocks of High-Performing Primary Care have been developed to further enhance the quality and breadth of primary care, particularly in the management of chronic diseases [23].

Effective management of chronic diseases in primary care is pivotal for both prevention and treatment. Identifying the most beneficial interventions and understanding the contexts in which they are effective is crucial. Extensive research continues to evolve, aimed at improving chronic disease management in primary care settings, whether through the CCM or alternative models. Previous systematic reviews have organized interventions around the elements of the CCM, a methodological approach that has been embraced by subsequent research. This article presents an updated review, concentrating on the impacts of interventions for physical health problems in primary care, and seeks to inform the development of interventions, as well as influence policy, practice, and future research [24].

Clinical implications and future research

It is crucial to promote further research into the effects of medical interventions on morbidity, mortality, and quality of life, particularly concerning early diagnosis, early treatment, and the management of multiple chronic conditions. Accurate and comprehensive data are vital for these studies. The adoption of electronic health records (EHRs) and the routine data input by GPs in primary care settings have significantly expanded research capabilities. The digitalization of healthcare allows for the merging of EHRs into much larger datasets than previously possible, enhancing the scope of biomedical, epidemiological, and public health research. Nonetheless, this expansion brings certain challenges. The requirement for informed consent might diminish the sample size and introduce selection bias [25]. Ensuring data confidentiality through secure de-identification methods could address privacy concerns [26].

Another issue is the selection and alignment of data from different databases for use in multicentre or international studies, including those not originally intended for research. Studies by Mada et al. (Romania) [27] and Majnaric et al. (Croatia) [28] highlight issues when utilizing EHR data not specifically prepared for research. Additionally, there is the challenge of securely de-identifying GP-provided data for use in specific diagnostic studies in both primary and secondary care settings. Data concerning rare diseases or data from known patient locations, as discussed by Hauswaldt et al. (Germany) [29], are especially sensitive. De-identifying data in small populations or communities is particularly challenging but necessary when assessing the potential impacts of local environmental factors on health.

2. Conclusion

Family physicians play an indispensable role in the landscape of healthcare, particularly in the realm of chronic diseases which dominate modern medical challenges. The review underscores the necessity of a holistic approach in primary care, which encompasses not just medical but also emotional and social factors influencing patient health. The integration of structured models like the Chronic Care Model has shown promise in enhancing the quality of care provided by family physicians. However, continuous evolution and adaptation of these frameworks are crucial to meet the growing complexities of patient needs and healthcare systems. As chronic diseases continue to rise, reinforcing the capabilities of family physicians through education, support, and resources will be vital in improving health outcomes and reducing healthcare costs. Future research should focus on refining these interventions and exploring innovative ways to integrate technological advancements into chronic disease management. The collaborative efforts between patients, family physicians, and healthcare policymakers are essential to forge pathways towards a more effective and sustainable healthcare system.

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