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Review Article

**ROLES OF FAMILY PHYSICIANS IN LONG TERM  
MANAGEMENT OF DIABETIC**<sup>1</sup>Ahmad Hameed Allehaiby<sup>2</sup>Sarah Musaed Alluheibi<sup>3</sup>Hind Musaed Alluheibi<sup>4</sup>Eyad Emad Aljefri<sup>5</sup>Shorooq Hameed Allohaibi<sup>6</sup>Amal Hameed Allohaibi<sup>7</sup>Sondos Abdelmalik Aboukhashaba**Abstract:**

*Although there are criteria based on research, the attainment of high-quality diabetes care is not always accomplished. Identifying the elements linked to the quality of management in primary care can provide valuable insights for enhancing services. This can help in customizing quality improvement initiatives to meet the specific needs and resources of different practices. The proficiency and implementation of primary care physicians in regards to diabetes screening, diagnosis, and treatment were below the desired standard. During the initial stages of treatment, physicians demonstrated adequate knowledge in areas such as determining the appropriate timing to initiate medication and selecting the initial treatment approach. However, their knowledge and performance fell short of expectations during the follow-up and more advanced stages of treatment. Their preference is to direct patients to higher tiers within the healthcare system. Recently, professionals who have just completed their medical training shown superior understanding and a more effective strategy to managing diabetes mellitus. Hence, it is vital to promptly carry out efficient recurring training to tackle this drawback and enhance the standard of service.*

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**INTRODUCTION:**

Diabetes mellitus (DM) is a burgeoning health issue that has attained pandemic levels [1]. Among individuals afflicted with this ailment, approximately 90% to 95% have type 2 DM [2]. The International Diabetes Federation has estimated that there are currently over 285 million people worldwide with type 2 DM, and this number is projected to surpass 439 million by the year 2030 [1]. The rise in this phenomenon can be attributed to several factors, namely the aging population, enhanced survival rates, and the growing prevalence of overweight/obesity [3]. A recent extensive observational cohort research demonstrated that being overweight or obese significantly raises the likelihood of developing coronary heart disease and cardiovascular disease in individuals with type 2 diabetes mellitus [3]. The prevalence of cardiovascular disease is 2- to 4-fold higher in patients with DM compared to those without DM. Recent data from the Framingham Heart Study show that patients with type 2 DM have not seen reductions in coronary heart disease or cardiovascular risk factors, unlike patients without DM [4].

According to the Centers for Disease Control and Prevention, there are more than 29 million adults in the United States who have been diagnosed with diabetes. One Only in the year 2012, a staggering 1.7 million persons received a fresh diagnosis of diabetes. One Individuals diagnosed with diabetes face a heightened susceptibility to many consequences, such as diabetic retinopathy, nephropathy, neuropathy, cardiovascular disease, amputations, and premature mortality [1]. Patients often face a very intricate process when managing diabetes.

The objective of this addition is to furnish primary care physicians (PCPs) and other healthcare professionals who attend to patients with type 2 DM with the most up-to-date knowledge regarding the underlying mechanisms and present challenges in the treatment of patients with type 2 DM. The topics covered in this supplement encompass the involvement of faults in the incretin system that lead to the high blood sugar levels in type 2 diabetes, the significance of managing cardiovascular risk factors, and the implementation of multifactorial treatment to decrease the disease's morbidity and mortality. Ultimately, we assess the recently developed incretin-based medications and examine their significance in the range of treatment options accessible to primary care physicians (PCPs) as they strive to enhance the overall well-being of patients with type 2 diabetes mellitus [5].

**DISCUSSION:**

Diabetes management is now more commonly provided in primary care settings, allowing patients to obtain care in their local communities [6]. Although there are many guidelines available, the attainment of high-quality care is not consistently attained. Risk factor control remains below the optimal level, and there are differences among countries in meeting clinical targets [7]. Efforts to enhance diabetes care often fall short, yielding minimal influence on clinical outcomes [8,9].

Comprehending the process of bridging the gap between evidence and practice, and effectively implementing evidence-based care into real-world practice, is crucial for providing efficient, suitable, and safer clinical care [10]. Delivering evidence-based care in the primary care environment is a complex task. Effectively handling intricate and potentially co-occurring patients with chronic illnesses like diabetes necessitates physicians to manage conflicting goals and time limitations, which are further exacerbated by shortages in the workforce [11]. Determining the variables that impact the quality of diabetes management in primary care might provide insights for enhancing adherence to evidence-based care and customizing quality improvement interventions to real-world circumstances [12].

Uncontrolled diabetes can lead to several concomitant health conditions that impair patients' quality of life and inflict a large economic burden. The overall burden of diabetes remains significant due to the increasing prevalence of the disease, which is expected to rise [13]. Ensuring diabetes care of superior quality and cost-effectiveness is crucial at both the individual and society levels. The National Committee on Quality Assurance (NCQA) and the American Diabetes Association (ADA) have collaborated to create a guideline for providing high-quality care for diabetes. This guideline includes specific measures such as regular testing of glycohemoglobin (HbA1c), low-density lipoprotein (LDL) levels, and microalbuminuria. The goal is to prevent adverse outcomes such as acute and chronic vascular complications [14]. Nevertheless, multiple studies have demonstrated that there is still scope for enhancing the existing management of diabetes, particularly in terms of mitigating risk factors and attaining the recommended benchmarks outlined in clinical guidelines. These aspects typically constitute the primary services rendered by family physicians in the provision of patient care. Studies conducted in Taiwan have revealed inadequate diabetic management, which has resulted in the development of vascular problems in patients [15,16].

The inadequate control of diabetes is often attributed to multiple factors. According to a prior study, significant factors contributing to the issue include a medical strategy that focuses primarily on the disease, a lack of understanding, and limited involvement of patients in the decision-making process. A further investigation conducted by Shani *et al.* [17] revealed that the primary care physician of a patient is the most significant determinant of the quality of diabetes care. The effectiveness of physicians in managing diabetic patients may vary depending on their expertise in different areas. It can be hypothesized that endocrinologists possess a greater depth of knowledge on diabetes, whereas general and family physicians may have a more patient-focused approach in their practices. This difference in approach could potentially impact the quality of diabetes care provided [18].

Diabetes self-management education (DSME) is an essential aspect of care for every individual with diabetes. Participating in diabetic self-care activities is linked to enhanced glycemic control and can help reduce complications connected to type 2 diabetes in adults [19]. A significant portion of a patient's diabetes care occurs inside their familial and social milieu [20]. It is crucial to consider the home setting while dealing with adults with diabetes, as here is where most of the disease management takes place. According to the Institute for Patient- and Family-Centered Care, family members are defined as a group of two or more individuals who are connected via biological, legal, or emotional ties [21]. Family members can encompass individuals from nuclear, extended, and kinship networks [22].

Relatives can actively provide support and care for individuals suffering from diabetes [23]. The majority of persons reside in a household that exerts a significant impact on behaviors related to managing diabetes. An analysis of almost 5000 individuals diagnosed with diabetes emphasized the significance of family, friends, and coworkers in enhancing overall well-being and self-care [24]. Family members are frequently called upon to participate in the collective effort of disease management. They offer many types of assistance, including practical support like transporting patients to appointments or assisting with insulin injections, as well as social and emotional support to help patients manage their illness [25]. Family members frequently exert a substantial influence on a patient's mental health, compliance with medical treatment recommendations, and capacity to initiate and sustain changes in diet and activity [26]. Long-term follow-up studies have revealed a positive

correlation between social support and enhanced self-reported health in middle-aged and older individuals diagnosed with type 2 diabetes. Research has shown that there is a favorable correlation between family cohesion, family functioning, and patients' self-care practices. Additionally, these factors are also associated with improvements in blood glucose management.

Restricting diabetes education solely to the individual with type 2 diabetes may curtail its effectiveness on patients, as the involvement of family members can significantly influence disease management. Family-based approaches to chronic disease care prioritize the circumstances in which the disease manifests, encompassing the family's physical surroundings, as well as the educational, relational, and personal requirements of patients and family members [27]. Integrating family members into educational programs can offer assistance to individuals with diabetes, facilitate the cultivation of beneficial family habits, and encourage self-management of diabetes [28].

The correlation between female physicians and superior quality of care aligns with prior studies that have investigated preventive care for women, the treatment of chronic health conditions, and hospital care [29]. The attitudes and views of healthcare providers regarding diabetes, as well as the quality of communication and interpersonal skills between providers and patients, can either facilitate or impede diabetes management. Prior research has suggested that variations in communication styles between male and female physicians, as well as a heightened emphasis on preventative treatment by female physicians, could potentially account for disparities in the quality of healthcare [29,30].

Slightly more than 50% of the papers included in the analysis that investigated the age of physicians found a statistically significant relationship. The discovery that advancing age is correlated with diminished quality aligns with several investigations on age/experience among physicians practicing in hospitals and primary care settings, albeit not universally. In conclusion, the evidence is inconclusive, requiring further investigation to fully comprehend the link and arrive at a definitive conclusion. Senior general practitioners may have less propensity to embrace and execute novel practices and standards of healthcare [31]. Furthermore, it is possible that their level of care may seem to be of worse quality due to the fact that they are senior physicians who handle older and more intricate patients. Nevertheless, the majority of research

accounted for patient co-morbidities or patient complexity. It is worth mentioning that only a small number of individuals included practice elements [32]. The inconsistent results may be due to practice factors that were not taken into account, such as academic affiliation or private/public status. An investigation of the variations in care delivery by GPs based on their age or practice position could provide valuable insights for developing strategies to enhance support for care delivery. For instance, this could involve initiatives such as continuing education or addressing the workload of GPs [32].

The association between caseload and the quality of care for diabetes is not well-defined. The association between the prevalence or volume of diabetic cases at the practice level and quality of care was not consistent. Nevertheless, our meta-analysis revealed a favorable correlation between the volume of diabetes cases handled by physicians and the quality of care provided, which aligns with previous research conducted in the acute care setting [33]. Practices with a high prevalence of diabetes are likely to be more proactive in improving the care of the disease. Nevertheless, increased consumption by individuals diagnosed with diabetes may impose a greater burden on practice personnel and resources, resulting in a detrimental impact on quality. The correlation observed in certain studies between prevalence and worse reported quality could potentially be attributed to the higher prevalence rates in socioeconomically disadvantaged areas, as deprivation was found to have a negative link with quality [34]. The correlation between the number of diabetes cases treated by a physician and the quality of care provided may be due to the increased expertise gained through more experience. This suggests that having a general practitioner or nurse who specializes in diabetes care can be beneficial. Studies have shown that care models involving general practitioners with a specific interest in diabetes have resulted in improved outpatient attendance and better control of HbA1c levels [34]. The majority of individuals diagnosed with type 2 diabetes mellitus have excess weight or are obese. While it is acknowledged that the main objective in treating these patients is to lower blood glucose levels, it is crucial to also address the issue of overweight/obesity. Prioritizing the use of medicines that facilitate weight loss and minimize the risk of hypoglycemia is crucial for effectively managing type 2 diabetes mellitus in these individuals. In their analysis, Drs Schwartz and Kohl<sup>17</sup> examine the evidence regarding the association between overweight/obesity and its impact as a risk factor for cardiovascular diseases. They also discuss the

potential risks of hypoglycemia and how the fear of experiencing low blood sugar levels can hinder efforts to achieve strict glycemic control. In addition, they analyze data about incretin-based medicines and their impact on overweight/obesity, hypoglycemia, and other cardiovascular risk factors [34,35].

I analyze the physiological aspects of the incretin system, elucidate the role of abnormalities in the incretin system in the development of hyperglycemia in type 2 diabetes mellitus, and explore the reasons behind the focus on investigating the modulation of GLP-1 receptor agonists. The review also contrasts the disparities between GLP-1 receptor agonists and dipeptidyl peptidase 4 inhibitors and their function in the treatment of individuals with type 2 DM [36].

Primary care physicians provide medical care for a minimum of 90% of the 24 million individuals in the United States who have DM (diabetes mellitus). Dr. Unger [37] provides a comprehensive analysis of the significance, effectiveness, and safety information on incretin-based medicines. These agents have the ability to positively impact glucose control and cardiovascular risk factors in patients with type 2 diabetes mellitus. Subsequently, he outlines the practical viewpoints for primary care physicians (PCPs) when using these substances to treat their patients with type 2 diabetes mellitus (DM) and offers clinical suggestions for incorporating these substances into their arsenal of therapeutic options [37].

Dr. Stolar [38] offers a thorough definition of treatment success in individuals with type 2 DM, which encompasses achieving the best possible outcomes in terms of reducing cardiovascular risk factors linked to both microvascular and macrovascular problems, as well as impeding or halting the progression of the illness. In addition, he explores novel approaches to managing patients with type 2 diabetes mellitus that prioritize the treatment of obesity, hypertension, and dyslipidemia alongside hyperglycemia, sometimes even with higher intensity. Research conducted in the UK, Germany, and Denmark indicates that incorporating nurses into diabetes care is linked to enhanced diabetes management quality and substantial time savings for general practitioners, without any negative consequences [37,38]. Nevertheless, these studies fail to offer insights into the strategies employed by nurses to enhance the quality of treatment when collaborating with general practitioners. Curiously, in our survey, GPs stated that the main duty of cHCPs was to adhere to a standardized diabetic control. However, nurses and medical secretaries expressed that their attention

also encompassed addressing patients' psychological and emotional needs. Nurses and medical secretaries reported employing a conversational, personable, and powerful style of communication with patients, whereas GPs described their approach to clinical reasoning as consultative and informed by test results. Within this particular framework, it appeared that cHCPs served as an additional support to care provided by general practitioners. This discovery is consistent with prior research conducted in primary care, which indicates that patients perceive nurse-led consultations as being more casual and amicable compared to consultations led by general practitioners [39,40].

Patient-centered care (PCC) has the potential to enhance patients' understanding, overall well-being, and capacity to manage their condition, ultimately resulting in more suitable medical choices [41]. The nursing profession has been commonly described as the "organizational glue," a concept that has been associated with traditional gender roles. Women in the healthcare sector are advised to focus their attention on the needs of others, including organizing tasks, collaborating with colleagues, and making practical preparations for patients and their families. This is done in order to address any functional deficiencies in the workplace [42].

The correlation between female physicians and superior quality of care aligns with other studies that have investigated preventive care for women, the treatment of chronic health conditions, and inpatient care [37,40]. Provider attitudes and views toward diabetes, as well as the quality of patient-provider communication and interpersonal skills, can either facilitate or impede diabetes management. Prior research has suggested that variations in communication styles between male and female physicians, as well as a heightened emphasis on preventative treatment by female physicians, could potentially account for disparities in the quality of healthcare [40].

Slightly more than 50% of the research included in the analysis that investigated the age of physicians found a notable correlation. The discovery that advancing age correlates with diminished quality aligns with certain investigations on the relationship between age and experience among physicians in hospital and primary care settings, albeit not universally. In conclusion, the evidence is inconclusive, requiring further investigation to fully comprehend the link and arrive at a definitive conclusion. Senior general practitioners may exhibit a reduced inclination to

embrace and execute novel techniques and standards of care [26,40]. Furthermore, it is possible that their level of care may seem inferior due to the fact that they are attending physicians who mostly treat older and more medically intricate patients. Nevertheless, the majority of research accounted for patient comorbidities or patient complexity. Remarkably, only a small number of individuals considered practice considerations while making adjustments. The conflicting results could be due to practice factors that were not taken into account, such as academic affiliation or private/public status. An investigation of the variations in care delivery by GPs based on their age or practice position could provide valuable insights for developing strategies to enhance support for care delivery. For instance, this could involve implementing continuing education programs or addressing the workload of GPs [42].

### CONCLUSION:

Swift and efficient measures must be taken to enhance doctors' awareness and proficiency in Diabetes care. The optimal resolution lies in the successful implementation of the family medicine specialized training program, which has been initiated in our country for a few years. Furthermore, the temporary resolution of this issue can be achieved by developing an extensive and enduring training program specifically tailored for general practitioners. The participant's perspective indicates a strong preference for conducting workshops and virtual training sessions as the preferable methods. It is recommended that these procedures be employed as the primary training techniques. Family physicians have the major responsibility of managing and monitoring chronic diseases. Therefore, it is crucial to develop a practical and precise guideline that enables these practitioners to properly treat Diabetes in typical situations.

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