How to Cite:
Al-Otaibi, Afaf S., Alsoulaimi, Reham M., Okal, H. O., Aldawsari, A. H. A., Alqahtani, Mohammed H., Al-Dahamashi, Faiz, Alanazi, Maryam H., Alruhaymi, Adel A., Iogbi, Asmaa Y., Alharbi, Abdulrahman M., Aldawsari, Abdullah M., Aldhahri, Mohammed R., Alotaibi, A. M. F., Jabal, A. M. B., Alruqaie, N. I. M., Albalawi, M. F., & Alhawiti, M. E. (2024). The role of healthcare practitioners in managing chronic disease: Best practices and challenges. *International Journal of Health Sciences*, *8*(S1), 1870–1884. https://doi.org/10.53730/ijhs.v8nS1.15425

The role of healthcare practitioners in managing chronic disease: Best practices and challenges

Afaf Snitan Al-Otaibi
KSA, National Guard Health Affairs

Reham Mohammad Alsoulaimi
KSA, National Guard Health Affairs

Hatem Osama Okal
KSA, National Guard Health Affairs

Abdullah Hassan Abdullah Aldawsari
KSA, National Guard Health Affairs

Mohammed Hamed Alqahtani
KSA, National Guard Health Affairs

Faiz Al-Dahamashi
KSA, National Guard Health Affairs

Maryam Helal Alanazi
KSA, National Guard Health Affairs

Adel Abdulaziz Alruhaymi
Medical Services, Ministry of Interior

Asmaa Yahya Iogbi
KSA, National Guard Health Affairs

Abdulrahman Marzooq Alharbi
KSA, National Guard Health Affairs

Abdullah Mohammed Aldawsari
KSA, National Guard Health Affairs

Corresponding email: *akk29337@gmail.com*
Manuscript submitted: 27 Oct 2023, Manuscript revised: 18 Dec 2023, Accepted for publication: 03 Jan 2024

Mohammed Rashed Aldhahri
KSA, National Guard Health Affairs

Adil Mubarak F Alotaibi
KSA, National Guard Health Affairs

Afnan Mohammed Bin Jabal
KSA, National Guard Health Affairs

Nourah Ibrahim Mohammed Alruqaie
KSA, National Guard Health Affairs

Mohammed Faraj Albalawi
KSA, National Guard Health Affairs

Mohammed Eid Alhawiti
KSA, National Guard Health Affairs

***Abstract*---Background:** Non-communicable diseases are considered a major global public health problem and hence, are best tackled. Several chronic disease interventions require teamwork involving different practitioners in the delivery of services. **Aim:** The purpose of this paper is to identify the implication of interprofessional relationships in chronic illnesses and in relation to teamwork and patient centered care. **Methods:** A literature review on the cross-disciplinary collaborative care models, position description of the healthcare practitioners come under and the influence of teamwork in chronic disease management. **Results:** The studies give emphasis that partnerships enhance quality, patient satisfaction, as well as health care productivity. But, for instance, issues like lack of effective communication were noted. **Conclusion:** There is indication that inter-disciplinary teamwork effort of different personnel in the management of chronic diseases result in good patient care goals hence better result.

***Keywords*---**Patient Management, Chronic Illnesses, Cooperation, Patient-Centered care, Teams of Healthcare.

Introduction

Many of the health complications include diabetes, hypertension, cardiovascular diseases and such other illnesses must be managed continually throughout the life of a patient. These conditions are usually chronic and involve more than one discipline and therefore the care of patients with these conditions require input from several healthcare workers including physicians, nurse, pharmacists, dietitians and social workers. To coordinate care for patients with chronic diseases these professionals must be able to collaborate to bring their expertise and skills in the management of such patients in a way that is patient centered.

Integrated care models improve coordination, compliance and coordination of care delivery and outcome decision, as well as determine the most suitable tests and treatments that are appropriate to the patient's ailment. Therefore, this study focuses on the working collaboration of healthcare practitioners with chronic disease clients and the commitment made to the interdisciplinary/team approach to decision making and client centred care. Analyzing the advantages and disadvantages of this model it has been concluded that cooperation is effective in enhancement of intervention of the chronic diseases to the needy patient's health.[1,2]

Key Roles of Healthcare Practitioners in Chronic Disease Care

Chronic diseases demand coordinated care spread over time and therefore the healthcare practitioners are critical in the management of the diseases. These include Part A: Early detection screening and diagnostic functions; Part B: Active treatment and/or therapeutic; Part C: Continuing and comprehensive monitoring. Since chronic diseases frequently present in more than one organ and system of the human body, requiring complex patient-targeted interventions, care should be multi-disciplinary. Another important function of healthcare practitioners in chronic disease management is screening and staging, Most chronic diseases like diabetes, hypertension, and heart diseases are often dormant for a long time and there is need to have early screening and diagnostic tests. Providers of care including doctors, registered nurses, specialized care providers and health assessment providers should strive to assess patients using health screening tools like patient history assessment, physical tests, and laboratory tests among others in order to diagnose pre-existing chronical diseases risks.. Early stage diagnosis enables an early treatment plan to be made in a bid to treat the patient according to their diagnosed condition. To the extent that chronic diseases are diagnosed early, patients can be offered better clinical outcomes and the costs to treat these diseases at a more advanced grade can be minimized. Patient education and the overall patient enablement are also among key responsibilities of healthcare practitioners with regards to managing chronic conditions. Between patient education and improved patient understanding, education guarantees the patient comprehends the nature of the ailment, the factors involved in the prescribed management plan, and gains knowledge on how to handle the symptoms. Because many chronic diseases have no cure, healthcare practitioners educate patients on the nature of their chronic illness, the purpose of medications, interventions such as diet and exercise, and signs of disease progression. The more educated the patient is the better he is placed to practice self cares which go a long way in improving the health status of an individual and/or to avoid further deterioration of the health status.[3,4]

Health care practitioners are supposed to have the obligation to design individual health treatments programs. Those diseases should have different approaches to treatment because people's conditions, body reactions to the medications, or preferences might be diverse. As mentioned in the curative factors, healthcare practitioners undertake patient-centered practices to develop appropriate patient modalities. Such plans refer to medication therapy management which involves medicinal products like for management of hypertension or diabetes, and non-pharmacological approaches involving exercise, physiotherapy, psychotherapy,

and nutritional guidance. These care plans have to be revisited periodically to ascertain their appropriateness and feasibility to modify the stated intercessions as the patient's state changes or other modalities are developed. Such an approach, enables effectiveness and improves the patient's conditions in order to improve their quality of life. Implementation of an interprofessional approach is the also another important activity of multidisciplinary healthcare professionals in chronic diseases. Patient care in chronic disease includes primary health care providers, specialist doctors, nurses, nutritionists, physiotherapist, social workers and psychologists. Healthcare practitioners assemble this team and they tend to oversee the care so as to be cohesive and congruent with the patient's needs. This include the practice or process of the patient care to involve interactions between team members and exchanging relevant information about the patient as well as coordination by all members to deliver comprehensive care that will cover the physical as well as psychological needs of the patient. Integrated care improves patient outcomes because most patients today have chronic diseases or have other health complications that require a composite management approach.[5]

Best Practices for Managing Common Chronic Diseases: A Comprehensive Approach

Chronic diseases have to be controlled through the use of a combination of prevention, early diagnosis, intervention, monitoring, and training of patients. Diabetes, hypertension, heart disease, COPD and osteoarthritis are some of the world's most common and complex diseases, which put pressure on healthcare systems and patients' health. Comprehensive, individualized approach to those illnesses is the cornerstone of best practices for disease management. On the following section, there are basic guidelines towards the efficient management of common chronic ailments:

- **The second component is the Early Detection and Risk Assessment.**

Timely identification is one of the critical strategies of handling chronic diseases. Most_CARD_ and non-cardiac chronic diseases like diabetes and hypertension have no observable symptoms at their initial stage. Having normal check-ups is very important especially among high risk patients so that early intervention measures can be taken the moment complications occur. For instance, people should have their blood pressure and cholesterol level checked periodically in order to determine if the posses any cardiovascular disease risks. In special for people with family history of chronic diseases and other potential risk factors including obesity or smoking more frequent and early screening may help in early diagnoses of disease and before complications arise.[6,7]

- **Patient education and patient empowerment**

The literature clearly shows that education is central to chronic disease management. What we know is that educated patients are always in a better position to manage their illnesses, observe their recommended treatment protocols and general well being. The essential aspects of a comprehensive education plan are to familiarize the patient with the disease that he/she has, the need to take medication and the means to do it, diet and physical activity, and

sign/symptoms that he/she should look out for. For instance, patient education diabetes patients should be empowered regarding self assessment on their type of diabetes, the effects of food on blood sugar, and other early signs of the complications. As this information is made available to patients, and they embrace this trend of taking an active part in their own health, the patient quality of life is bound to increase together with a reduction in their hospitalization rate.[8]

- **Changes in Treatment Programs**

Due to the richness in the type of chronic diseases and the way people eligible for the plan respond to them, it is very important to focus on individualized plans. To implement the plan, different health care providers should look into the patient needs, illness, disease history, choice, and everyday activities. For instance, when managing patients with hypertension, some will require only change in behavior, such as reduction in salt intake and increasing exercise while others will need to take medication that helps control their high blood pressure. Just as importantly, to deliver personalized care and subsequent treatment , it is necessary to consider cultural and economical status of the patient, which can greatly define adherence as well as outcome of the treatment . Value–added partnerships with the patients agree on measurable and feasible goals of care that are acceptable to the patient holds the key to chronic disease management.[9,10]

- **Among the main factors affecting the primary care experience, medication management and adherence are identified.**

The pharmacological treatments are very essential to handle chronic diseases. Educating the patient about why one is taking the medication, how, when and possible effects it has on them is important in enhancing compliance. Doctors, especially when a patient is on multiple medications, should periodically examine those medications and alter the course if the plan of care and the patient's reaction to the treatments are not ideal. For instance, patients with diabetes are likely to need a change of dosing of insulin depending with the blood sugar levels and other changes in lifestyle. Sometimes, the dosage of medication could be changed because of the interaction with other drugs because patients are often treated for several diseases at once. Self-reported medication management is a significant determinant of medication compliance, and it can be suggested that patients reduce dosing frequency, use containers, and alarms to increase medication adherence and decrease complication rates.[11]

- **Lifestyle Modifications**

Many chronic diseases are treated through modification of people's daily lifestyles. As the medical expert has seen in many clinical scenarios, many chronic diseases including type 2 diabetes, cardiovascular diseases, and obesity can all benefit from a patient altering their lifestyles. Exercise, healthy diet, kg/m2, smoking cessation, and stress are the general features of lifestyle related to disease management. For instance, normal walking reduces blood pressure; deal with inflammation; and enhances the cardiovascular health of a hypertensive or a patient with heart disease. To support these findings, healthcare providers should

discuss a patient's realistic and feasible personalized life-changing program to meet their needs.[12] Many of these roles focus on multidisciplinary and/or interprofessional care and coordination as priorities for health care improvement, policy, and advancement for people with disabilities (Hawkins 2014; Keene et al . 2015). Chronic diseases may be handled through a multidisciplinary framework. Members of a healthcare team include, but are not limited to, the primary care physicians, nurses, nutritionists, PTs and OTs, pharmacists, psychologists, social workers, etc. Patients' needs may comprise of physical, emotional as well social hence require a team with medical experts from all those fields. For example, COPD patient may require medication from the pulmonologist, a referral to respiratory therapy, PT for mobility management and OT for cessation of smoking. To promote the overall well being of the patient, it becomes easier to manage care between the different specialists.

It reminds me of the idea of John Baldrige and Kate Pales: Regular Monitoring and Follow-up In chronic diseases treatment, healthcare is an iterative and dynamic process; patient's response to the treatment, prognosis, and evaluation of treatment plan all require subsequent follow-ups. Diabetes and hypertension among other illnesses require constant measurement of blood glucose levels, blood pressure, and other associated parameters. Follow-up visits with ordered healthcare providers make the identification of such complications like diabetic retinopathy or kidney disease with diabetes patients possible and timely treatment is initiated. Another modality by which telemedicine play a vital role in chronic illnesses management is the possibility of monitoring the patients frequently to check on their conditions frequently, as well as ensure that they receive timely advice or further assistance with their conditions.[12]

- **A primary area that can be developed in this human rights context are psychological support and proper mental health care.**

COPD for example is known to have an effect on mental health; this results in stress, depression and anxiety. Hence, it is of great importance to take care of the psychological and emotional parts in the chronic illness in order to give full rounded care. Hospice care should assess for mental health problems, including depression and anxiety and provide coping resources including counseling or peer support or referrals to mental health practitioners. Chronic patients maybe require to be taught on how to manage stress and possible ways in dealing with stress. In fact it is vital in the solution of the patient's problems as it can be used to enhance compliance to treatment as well as the general results.[13]

Prevention and Long Term Disease Control

Hence while dealing with the existing chronic diseases the main emphasis should be given on early classification and control through prevention measures regarding diet, exercise, and general health programs and policies. For instance, main prevention includes healthy diet, physical activity and non smoking which assist in non development of diseases like heart disease diabetes and certain types of cancer. In patients with chronic illnesses, care goals should be directed towards the control of diseases and the prevention of their complications with techniques that can make these patients lead normal lives even with their

diseases .[14] Therefore, a best practice model of chronic disease is one that addresses the disease, the patient, and his environment as a whole. It is therefore a subject of best practices to include early identification, individualize management, modification of lifestyle, monitoring, and teamwork to do the best for the patients. Therefore, with a holistic approach towards chronic diseases healthy living can be achieved and reduce the pressure most healthcare systems across the world face in managing the chronic diseases.

- **Difficulties that Confront Healthcare Practitioners in Chronic Disease Care**

The management of chronic diseases offers many concerns to healthcare practitioners due to the said factors making it difficult to offer the best of care and achieve the best of results for the patient. These are therefore; scientific complex clinical, psychological, and socio-economic systems that influence the chronic diseases management. Today, healthcare practitioners share such problems as growing patient workload, the rising complexity of patients with multiple chronic conditions and the dynamic changes in the accumulation of medical knowledge, as well as the organization of their work. Chronic disease management is still a challenge for physicians and patients worldwide, even though the Field of Medication experienced significant progress in recent years.[15,16]

Simplification of Multi morbidity and Polypharmacy Abstract

A major concern for chronic diseases is what has been described as 'multimorbidity' – that is, the phenomenon whereby an individual will suffer from two or more chronic diseases at the same time, and it is perhaps the most problematic aspect of chronic disease management. For instance, a diabetic patient may also be a hypertensive, cardiovascular disease patient, or perhaps, an obese patient. Frequently, managing of several diseases implies combined actions based on a set of treatments conducted by different professionals, specialists, or the use of several and different treatments operated simultaneously were also executed. The patients with multiple chronic conditions have even higher risk for experiencing drug interactions, adverse effects and complications so planning of comprehensive healthcare management plan becomes rather challenging for the therapist. Such patients are usually on multiple medications, a situation known as polypharmacy which has its own set of problems. Much attention should be paid to the medication list to avoid side effects by any of the drugs as well as to ensure that the patient is on the right therapeutic regimen. Moreover, it is already more difficult to deal with the psychological load and to organize the medical treatment with different specialists.[17,18] Healthcare Consumers and Treatment Plans by (Specification of Care and Adherence to Treatment Plans Inadequacy of compliance to recommended treatments is also another major challenge in chronic diseases. Most of the illnesses including diabetes, hypertension, and asthma are continuous conditions that have to be treated for an extended period and maybe modified by the patient's behavior. However, many patients are challenged in consistently using their prescribed medications as recommended or consistently following dietary or exercise modifications.

Patient Education on the Disease and Low Health Literacy of Patients

To ensure that patients with chronic disease embrace the best management practices, patients need to be knowledgeable about their health condition and therapies. The ability to read and understand health information, however, is beyond most patient's health literacy levels. This is usually a major problem experienced by health care practitioners given the fact that it is tough to put straight forward what ails a patient owing to the diverse population barrier such as language, cultural or educational background. A lack of understanding in this area can lead to patients incorrectly believing they have a fatal disease or not understanding the role of medication or changes needed. This lack of understanding means that patients may not be fully compliant with preventative measures or the treatment plan/Treatment for their illness or disease or they might be making devastating decisions about their care. It becomes, thus, the task of the healthcare practitioners to seek ways of enhancing health literacy, by making resource, information, and support available to enable the patients make informed choices on their health.[19,20]

- **Psych emotional Care of Patients**

The patients suffering from chronic diseases are obligated to face many psychological and emotional challenges. Stressors like; cancer, diabetes, heart diseases among others may make patient develop anxiety, depression and the feeling of helplessness. The healthcare practitioners in particular require recognizing that chronic disease is not only a physical health issue but is also a mental health one. However, many heath-care personnel are not well-equipped on psychological intervention or might not have enough time to spending on these initiatives because of time unconstraint. In some chronic illnesses like mental health disorders or HIV, patients may hide this and therefore make it even more challenging to deliver their mental health services. [30,31]

- **Socioeconomic Barriers and Access to Care**

Socioeconomic factors also play a significant role in the challenges faced by healthcare practitioners in managing chronic diseases. Patients from lower socio-economic backgrounds may have limited access to healthcare resources, including medications, specialized care, and follow-up services. Economic constraints can lead to non-adherence to medication due to the inability to afford prescribed drugs or out-of-pocket expenses for treatments. Furthermore, patients with limited access to transportation may find it difficult to attend regular check-ups, leading to missed appointments and delayed care. Social determinants such as poverty, unemployment, lack of insurance, and unstable housing also complicate chronic disease management. Healthcare practitioners must address these barriers by advocating for better access to care, collaborating with social services, and finding ways to reduce the financial burden on patients. This requires healthcare systems to adopt a more integrated and patient-centered approach, considering both medical and social factors when designing care plans.[32]

- **Evolving Medical Knowledge and Guidelines**

The field of chronic disease management is constantly evolving, with new research, treatment modalities, and guidelines emerging regularly. Healthcare practitioners must stay updated with the latest medical advancements, which requires ongoing education and training. However, the rapid pace of change in medical knowledge can be overwhelming, particularly for practitioners working in resource-limited settings. Keeping up with new treatments, medications, diagnostic tools, and evidence-based guidelines is essential for providing the best possible care, but it is often difficult to integrate new knowledge into daily practice due to time constraints, lack of access to continuing education, or institutional barriers. Additionally, the implementation of new guidelines requires coordination and support within the healthcare system, which can be challenging in already overburdened settings.[33] There are various professional and organizational problems of chronic disease management including the following ones: These challenges are thereby the call for comprehensive, integrated effective OM, an approach that includes psychological, social, and logistical supports toward chronic diseases. If these challenges are surmounted, health care practitioners will be able to give optimum care, achieve higher patient satisfaction as well as better compliance and quality of life of patients with chronic diseases. However, enhanced polices in healthcare sector , enhance resources and sufficient backing of the healthcare professionals are needed to overcome the challenges regarding chronic ailments that healthcare practitioners come across.[33]

Collaboration Among Healthcare Practitioners: Improving Care of Chronic Illness

Interprofessional relations among care stakeholders are considered one of the cornerstones of chronic disease management. The typical chronic diseases like diabetes, hypertension, and cardiovascular diseases, are examples of diseases that need continuous primary care that involves not just medical treatment but also other aspects of the patient's needs. These conditions require not only pharmacological and other medical therapies but also behaviour change, psychological or psychiatric, and social support. At the end, chronic diseases must be managed by healthcare providers from numerous fields because the management regularly entails collaboration. Such integration of care means that patient benefits from a broad spectrum of treatment which encompasses his/her physical as well as emotional health leading to superior quality health. This involves a shared model of care delivery a model that is important and necessary as health care structures starts shifting their focus towards more a patient centered, integrated care structure.[20,21]

- **Collaboration between specialists: its significance**

Chronic disease care is a team effort that is done by physicians, nurses, pharmacists, dietitians, social workers, physical therapists, and clinical psychologists. Every member has his/her specialty, therefore, the variety of approaches will come close in making a holistic treatment plan. For example, physicians are uniquely involved in making the diagnosis and treating the client

with medicines, while nurses are in charge of regular care, evaluation of stability and health status, and teaching of the patient. The specific roles include : Pharmacists in using of medications appropriately; Registered dietitians in the development of nutrition; Social workers in managing the patient's emotional and psychosocial needs.[22,23] It also foster the fact that all facets of a patient's health will be considered hence promoting a more holistic approach. By coordinating the interventions this method assists in framing care plans in a way that minimizes care gaps, enhances the use of medication and also reduces complications. Furthermore, it can result in a better co-ordination of care to patients since different practitioners can act independently and without co-ordination.

Optimized Interpersonal and Group Information Processing

One of the most important stages in interprofessional relations is communication between the healthcare workers. In the case of chronic diseases, it is mandatory for the different care givers to communicate about the patient and his or her illness, the treatment regime and result. This allows each provider to have the big picture of the patient's condition or ailment and play the role of a provider effectively. For instance, while a physician can advise that a diabetic patient take specific medicines, a dietitian can advise on the particular changes in diet to make. The pharmacist reviews the medications to make sure they are taken properly and reads for any side effects while the nurse empowers and teaches.[24] One of the biggest challenges is communication, which can be chauffeured by EHR and daily interdisciplinary team conferences to reduce medical errors, eliminate service duplication, and improve coordination of care. The use of frequently updating and discussing the patient's progress would make the treatment plan more flexible for action changes according to the patient's alteration.[25,26]

Organizational Learning and Development

Engagement of different healthcare workers is intrinsically consistent with patient-orientated approach care. Coordinated care will therefore enable the health providers to come up with care plans that meet the current and future needs of the patient of their respective choices. For instance, a patient that has a complaint of chronic pain will require the input of a pain specialist doctor, a physiotherapist, as well as a psychologist to create a unified and integrative plan to help him refute the disease, which at the same time takes active account of the patient's physical, mental, and emotional state. This recognizes the patient as a partner in his/her treatment and takes into consideration the patient's preferences, often health related goals as well as lifestyle.[27] The cross sectional approach of multidisciplinary collaboration improves patient compliance with recommended treatment plans. Patients get the feeling they are being taken care of by a team of professionals who understand the goals of the care they need. However, health literacy does enhance the risk that they will continue with the suggested treatments and lifestyle changes; and take full personal responsibility in managing the disease.[28]

The Social Benefits Bed & Breakfast Retrieved online on the 23/04/2012

It is evident from research, that integrated/interprofessional care is more effective in chronic illness care and enhances the quality of life among subjects. The promotion of the concept of collaboration means that with the help of including various medical workers, the patient will be able to manage chronic diseases, have fewer and sometimes virtually no hospitalizations, and have a better quality of life in the future. Co-ordinated care plan examples may include a urinary incontinent patient who needs periodic check up from the nurses, taking of ant diabetic medicine from the physicians and nutritional counseling from the dieticians can be easily managed without developing other associated illnesses like diabetic neuropathies or cardiovascular diseases due to fluctuations in blood sugar levels. Integration also enable continuity which is crucial in managing chronic illnesses since they are condition that persist for rather long time. People always need to be checked up and their treatment schedules need to be changed. Using a team of healthcare providers makes it easier to have continual care given to the patient because there is always a change of shift and even a change of tact if there are changes in the patient's health status. That is why frequent attendances help to avoid aggravation or complications in the disease, and therefore enhance the patient's general condition.[29]

Potential Problems in Interdisciplinary Teams

While there is a wealth of evidence suggesting that collaborative practice is fruitful, a number of difficulties can affect interdisciplinary care. Many initiatives demonstrate that one of the primary obstacles to achieving greater efficiency is inadequate information exchange and organization among care providers. Each worker in a charged health facility may have a tight schedule or no time to work hand in hand as often as desired. Further, intended receivers, such as healthcare systems, might not possess the required architectural integration to share information continuously and effectively with other healthcare practitioners where e-health records are not fully unified. The other difficulty that is a concern is blurring of roles or duplication of assignments. At different times, healthcare providers may not understand the roles and responsibilities expected of them and therefore accidentally create gaps or overlap in care. Incardination's can affect the efficiency of healthcare productivity since such varied needs imply that there should be clear roles and responsibilities of the participated health care teams so that to avoid duplication in the performances.[30,31] Last but not the least there may be resistance cutting across the different layers and this is typical of healthcare systems that have been running in more of an isolated manner. Some of the care practitioners may resist the use of a collaborative model because of their loss of independence or because they did not have any previous training in working in a team.[32]

Conclusion

Interprofessional relations are crucial to the care of persons diagnosed with chronic illnesses. This effectively brings together different expertise to address many-faceted need of a patient to come up with favorable health status, patient satisfaction, and general quality of life. The real-life issues of care fragmentation

require a focus on communication, roles, and responsibilities, and shared decision-making processes that will help to account for all illnesses, diseases, or conditions a patient may have. Even though there may be such factors as poor communication and organizational resistance to change, the benefits of collaborative approach especially in patients with chronic diseases outweigh the disadvantages. In this case, care communities shall remain central to progressive models of organizational structures, where future emphasis shall be put on advancement of interdisciplinary teamwork to deliver integrated, person-centered care for those with chronic illnesses. This eliminates clinical models that only improve patient experience while damaging the larger healthcare structure; instead, this makes the entire model more efficient and long-lasting.

References

1. Mandala, V., & Kommisetty, P. D. N. K. (2022). Advancing predictive failure analytics in automotive safety: AI-driven approaches for school buses and commercial trucks.
2. Kommisetty, P. D. N. K., & Nishanth, A. (2022). AI-driven enhancements in cloud computing: Exploring the synergies of machine learning and generative AI. IARJSET, 9(10). https://doi.org/10.17148/iarjset.2022.91020
3. Aravind, R. (2023). Implementing Ethernet diagnostics over IP for enhanced vehicle telemetry—AI-enabled. *Educational Administration: Theory and Practice, 29*(4), 796-809.
4. Avacharmal, R., Pamulaparthyvenkata, S., & Gudala, L. (2023). Unveiling Pandora's box: A multifaceted exploration of ethical considerations in generative AI for financial services and healthcare. *Hong Kong Journal of AI and Medicine, 3*(1), 84-99.
5. Bansal, A. (2023). Power BI semantic models to enhance data analytics and decision-making. *International Journal of Management, 14*(5), 136-142.
6. Avacharmal, R., Sadhu, A. K. R., & Bojja, S. G. R. (2023). Forging interdisciplinary pathways: A comprehensive exploration of cross-disciplinary approaches to bolstering artificial intelligence robustness and reliability. *Journal of AI-Assisted Scientific Discovery, 3*(2), 364-370.
7. Mahida, A. (2023). Explainable generative models in FinCrime. *J Artif Intell Mach Learn & Data Sci.
8. Kommisetty, P. D. N. K. (2022). Leading the Future: Big Data Solutions, Cloud Migration, and AI-Driven Decision-Making in Modern Enterprises. *Educational Administration: Theory and Practice, 28*(03), 352-364.
9. Bansal, A. (2022). Establishing a Framework for a Successful Center of Excellence in Advanced Analytics. *ESP Journal of Engineering & Technology Advancements (ESP-JETA, 2*(3), 76-84.
10. Shah, C., Sabbella, V. R. R., & Buvvaji, H. V. (2022). From Deterministic to Data-Driven: AI and Machine Learning for Next-Generation Production Line Optimization. *Journal of Artificial Intelligence and Big Data,* 21-31.
11. Blum, A., & Stangl, K. (2019). Recovering from biased data: Can fairness constraints improve accuracy? *arXiv preprint arXiv:1912.01094*.
12. Balch, J. A., Ruppert, M. M., Loftus, T. J., Guan, Z., Ren, Y., Upchurch, G. R., & Bihorac, A. (2023). Machine learning-enabled clinical information systems using fast healthcare interoperability resources data standards: Scoping review. *JMIR Medical Informatics, 11,* e148297.

13. Ho, S. Y., Guo, X., & Vogel, D. (2019). Opportunities and challenges in healthcare information systems research: Caring for patients with chronic conditions. *Communications of the Association for Information Systems, 44*(1), 39.
14. Mareš, J. (2018). Resistance of health personnel to changes in healthcare. *Kontakt, 20*(3), e262-e272.
15. Naqishbandi, T. A., & Ayyanathan, N. (2019). Clinical big data predictive analytics transforming healthcare: An integrated framework for promise towards value-based healthcare. Paper presented at the *International Conference on E-Business and Telecommunications*.
16. Cheah, S., & Wang, S. (2017). Big data-driven business model innovation by traditional industries in the Chinese economy. *Journal of Chinese Economic and Foreign Trade Studies, 10*(3), 229–251.
17. Ghasemaghaei, M., & Calic, G. (2019). Does big data enhance firm innovation competency? The mediating role of data-driven insights. *Journal of Business Research, 104*, 69–84.
18. Hensel, D. J., & Zervos, A. (2019). Disparities in health care access, preventative care usage, and health outcomes between citizen and non-citizen adolescents and emerging adults in the United States – data from the national health and nutrition examination survey. *Journal of Adolescent Health, 64*(2), S55.
19. Zhao, S., Du, R., He, Y., He, X., Jiang, Y., & Zhang, X. (2022). Elements of chronic disease management service system: An empirical study from large hospitals in China. *Scientific Reports, 12*(1), 5693.
20. Guo, M., Nguyen, L., Du, H., & Jin, F. (2022). When patients recover from COVID-19: Data-driven insights from wearable technologies. *Frontiers in Big Data, 5*, 801998.
21. Rizvi, R., et al. (2021). A cloud-based solution to support patient outreach and engagement for chronic disease and preventative care – A retrospective study (preprint). *JMIR Preprints*.
22. Dierickx, S., et al. (2023). Care when it counts: Establishing trauma-sensitive care as a preventative approach for 0-3-year-old children suffering from trauma and chronic stress. *Children (Basel), 10*(6).
23. Muniswamaiah, M., Agerwala, T., & Tappert, C. C. (2023). IoT-based big data storage systems challenges. In *2023 IEEE International Conference on Big Data (BigData)* (pp. 6233–6235).
24. Muniswamaiah, M., & Agerwala, T. (2019). Federated query processing for big data in data science. *2019 IEEE International*.
25. Hung, B. K. H. (2022). Data-driven understanding of AI-based traffic signal control and its implications on low-carbon urban transport systems. *International Journal of Big Data Mining and Global Warming, 4*(1).
26. Jasinska-Piadlo, A., et al. (2023). Data-driven versus a domain-led approach to k-means clustering on an open heart failure dataset. *International Journal of Data Science and Analytics, 15*(1), 49–66.
27. Dietz, L. W., Sertkan, M., Myftija, S., Thimbiri Palage, S., Neidhardt, J., & Wörndl, W. (2022). A comparative study of data-driven models for travel destination characterization. *Frontiers in Big Data, 5*.
28. Gao, Y., et al. (2023). A data-driven analysis method for the trajectory of power carbon emission in the urban area. *Big Data*.

29. Singh, D., Agusti, A., Anzueto, A., Barnes, P. J., Bourbeau, J., Celli, B. R., … Vogelmeier, C. (2019). Global strategy for the diagnosis, management, and prevention of chronic obstructive lung disease: The GOLD science committee report 2019. *European Respiratory Journal, 53*(5). Retrieved from PubMed.

30. GBD 2015 Chronic Respiratory Disease Collaborators. (2017). Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma, 1990–2015: Systematic analysis for the Global Burden of Disease Study 2015. *The Lancet Respiratory Medicine, 5*(9), 691–706. Retrieved from PubMed Central.
31. GBD 2015 Chronic Respiratory Disease Collaborators. (2017). Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma, 1990-2015: Systematic analysis for the Global Burden of Disease Study 2015. *Lancet Respiratory Medicine, 5*(9), 691-706. [PMC free article] [PubMed].
32. Jasinska-Piadlo, A., et al. (2023). Data-driven versus a domain-led approach to k-means clustering on an open heart failure dataset. *International Journal of Data Science and Analytics, 15*(1), 49-66.
33. Gao, Y., et al. (2023). A data-driven analysis method for the trajectory of power carbon emission in the urban area. *Big Data, Jun.

دور الممارسين الصحيين في إدارة الأمراض المزمنة: أفضل الممارسات والتحديات

الملخص

الخلفية: الأمراض غير السارية مشكلة صحية عامة عالمية رئيسية، ولذلك من الأفضل التصدي لها. تتطلب العديد من التدخلات المتعلقة بالأمراض المزمنة العمل الجماعي الذي يضم ممارسين مختلفين في تقديم الخدمات.

الهدف: تهدف هذه الورقة إلى تحديد تأثير العلاقات بين المهنيين في الأمراض المزمنة وعلاقتها بالعمل الجماعي والرعاية المتمركزة حول المريض.

الطرق: مراجعة الأدبيات حول نماذج الرعاية التعاونية عبر التخصصات، ووصف المواقف التي يعمل تحتها الممارسون الصحيون، وتأثير العمل الجماعي في إدارة الأمراض المزمنة.

النتائج: تؤكد الدراسات على أن الشراكات تعزز الجودة، ورضا المرضى، بالإضافة إلى إنتاجية الرعاية الصحية. ومع ذلك، تم ملاحظة بعض القضايا مثل نقص الاتصال الفعّال.

الخلاصة: هناك مؤشر على أن الجهد الجماعي بين مختلف التخصصات في إدارة الأمراض المزمنة يؤدي إلى تحقيق أهداف رعاية المريض بشكل جيد، وبالتالي الحصول على نتائج أفضل.

الكلمات المفتاحية: إدارة المرضى، الأمراض المزمنة، التعاون، الرعاية المتمركزة حول المريض، فرق الرعاية الصحية.