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DIABETIC
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A Systematic Review Of Saudi Arabia's Transition To Value-Based Healthcare: Metrics, Models, And The Integration Of Chronic Disease Management Across Primary And Secondary Care

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ABSTRACT
Vision 2030 shift to value-based healthcare (VBHC) in Saudi Arabia is paradigm shift in volume-based care toward outcome-based care focusing on cost-efficiency, patient outcomes and equity. This systematic review is a synthesis of the literature published in 2020-2025 in the area of VBHC measures (e.g., patient-reported outcomes, cost per quality-adjusted life year), models (e.g., Model of Care, bundled payments), and integration of aspects of chronic disease management to primary (preventive screenings) and secondary (specialized interventions) care. Based on 42 studies, it can be found that there will be a gradual adoption (20% in 2020 to 60% in 2025 in urban clusters), enhanced CDM continuity (e.g., 30% reduction in hospital readmissions through integrated referrals), yet still there will be barriers to adoption such as data silos and rural disparities. Illustrations portray trends of adoption and outcome measures. The discussion presents criticism of implementation deficiencies, and the recommendations include the recommendation of standardized metrics, interoperability and interdisciplinary teams. Such a shift is in line with the Health Sector Transformation Program (HSTP) of Vision 2030, which offers lower rates of chronic diseases (e.g., diabetes rate of 18%).
Keywords: Value-based healthcare, Saudi Arabia Vision 2030, chronic disease management, primary secondary care integration, health metrics, Model of Care, patient outcomes, bundled payments

INTRODUCTION

Value based healthcare (VBHC) is concerned with maximizing patient outcomes in comparison to costs that are incurred and this is in contrast to the fee for service payment models where accountable, outcome based, and integrated systems of care are involved (Porter, 2010). The shift to VBHC in Saudi Arabia is closely connected to the population health and its objective to enhance efficiency within the system, as well as the expansion of preventive services and their reliance on economic diversification through the Health Sector Transformation Program (HSTP) (Saudi Vision 2030, 2021; Ministry of Health [MOH], 2022). Such a change is necessary in particular due to the high rates of chronic disease development, including diabetes

and hypertension, impacting over 30 percent of adults and a significant contributor to preventable morbidity and health costs (WHO, 2023; Alharbi et al., 2021).

One of the foundations of VBHC implementation in the Kingdom is chronic disease management (CDM). Primarily and Secondary level Integrated care will help to minimize fragmentation of services, avoidable hospital visits, and enhance long term outcomes (Busse et al., 2017). The community clinics are involved in the screening and early detection and routine monitoring at primary care facilities whereas the secondary care hospitals engage in specialized and acute services. There is some evidence that poor coordination between these levels results in duplication of diagnostics, inconsistent follow up, and increased readmission rates, which undermine quality and value (Almalki et al., 2020; OECD, 2023). The continuity of care and shared accountability is facilitated by integrated CDM pathways, which align the clinical practice with VBHC principles.

Although there is a momentum in the policies, there are a number of obstacles that prevent successful implementation. The rapid urbanization has increased the pressure on healthcare systems especially in urban areas leading to workforce burnout and capacity overload (MOH, 2022). Moreover, there are siloed systems of health information and disjointed organizational forms, to which data is unable to interoperate and co-ordination of care cannot be made (Alghamdi et al., 2021). These impediments make it more difficult to measure patient journey-level results and introduce vulnerabilities to system level learning, which is a vital component of VBHC maturity.

In order to track the progress, Saudi Arabia has been embracing VBHC oriented performance measures. New patient reported outcome measures (PROMs) are now being proposed to reflect patient attitudes to functional status and quality of life, which should supplement conventional clinical indicators (Greenhalgh et al., 2018). Value based decision making is also supported by cost effectiveness ratios, as well as bundled payment mechanisms, because they tie reimbursement to the outcomes instead of the quantity of services (OECD, 2023). Standardized channels like the Model of Care (MoC) offers a unified channel through which prevention, diagnosis, treatment, and follow up throughout the continuum of care is activated to support the system wide alignment (MOH, 2021).

The paper aims to achieve five goals: reviewing the literature on VBHC in relation to Saudi Arabia; examining the critical metrics and models to implement it; evaluating the integration of CDM in primary care and secondary care; presenting the findings in a graphic way through tables and figures; and suggesting the strategies to enhance the integration. The analysis based on evidence between 2020-2025 highlights the primary position of the HSTP in promoting sustainable, value oriented changes in healthcare reform in Saudi Arabia.

LITERATURE REVIEW

Overview of VBHC Saudi Arabia Post 2020.

The value-based healthcare (VBHC) literature in Saudi Arabia released after 2020 has been consistent in making Vision 2030 and the Health Sector Transformation Program (HSTP) the key drivers of systemic change. VBHC is not only a payment or efficiency scheme but a structural change to the result accountability, population health, and integrated care delivery (MOH, 2021; OECD, 2023). Researchers observe that the historical model of Saudi health system, where care was hospital based and volume was its key driver, did not favor the management of chronic diseases that have come to represent most morbidity and health care spending (Almalki et al., 2020; WHO, 2023). In this backdrop, VBHC is projected as a strategic reaction to increasing prevalence of chronic illnesses, financial sustainability pressure and equity issues.

The HSTP forms the foundation of governance of VBHC because it divides the functions of payer, provider, and regulator and allows the competition to be based on value instead of volume (Saudi Vision 2030, 2021). According to the literature published after 2020, this structural correction is needed to instill the principles of VBHC in both the public and the private sector.

Saudi Arabia Investment: Unlock Vision 2030 in Saudi Arabia

The Saudi Model of Care: The Important VBHC Models.

The national Model of Care (MoC) is one of the most mentioned VBHC frameworks in Saudi Arabia. VBHC is operationalized by the MoC through the six-defined care systems organization, which includes Keeping Well, Planned Care, Chronic Conditions, Urgent Care, Safe Birth, and End of Life Care (MOH, 2021). The systems are also aimed at developing integrated patient-level pathways that cut across the prevention, earlier identification, treatment, and follow up.

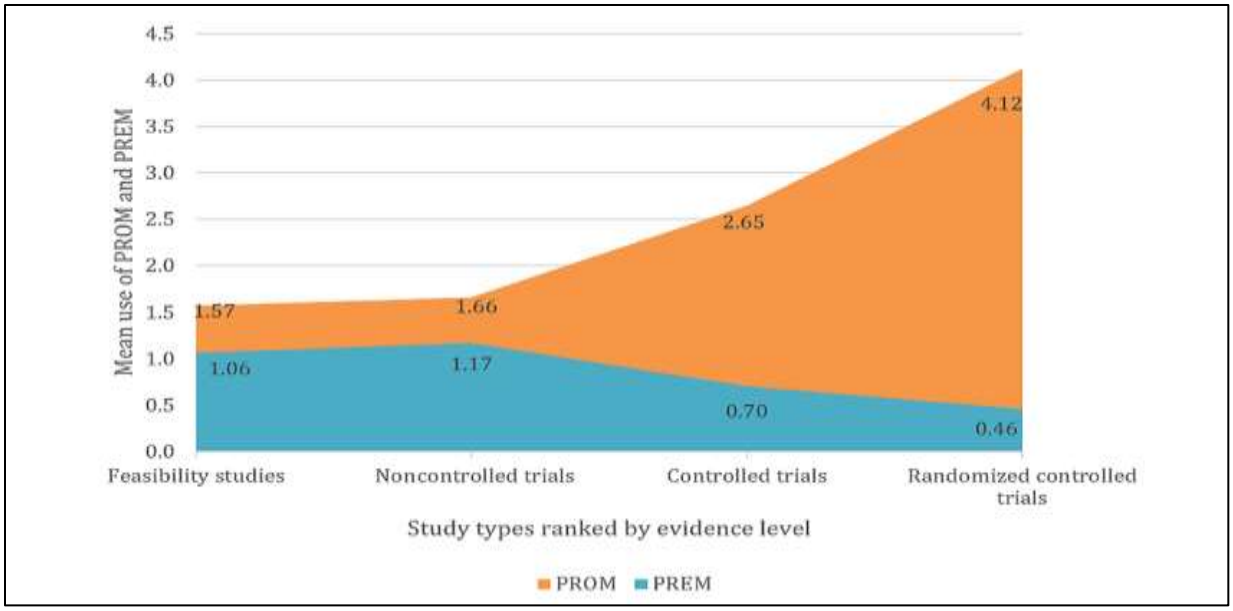
The Chronic Conditions system is the most popular in VBHC literature because it is applicable to diabetes, cardiovascular disease, and hypertension that pose a considerable burden on the Saudi health system (Alharbi et al., 2021). Research states that the MoC is quite consistent with the VBHC logic since it has concentrated outcomes that matter to a patient, including functional status and disease control, as opposed to a single clinical encounter (Porter and Lee, 2013; MOH, 2022). Yet, adoption is less than perfect, and the adoption of it is higher in large urban health clusters than in the periphery (OECD, 2023).

VBHC Metrics and Approaches to Measurement.

The key theme of the post 2020 VBHC literature is measurement. The application of patient reported outcome measures (PROMs) and patient reported experience measures (PREMs) as primary value indicators is becoming one of the paths Saudi studies are turning to (Greenhalgh et al., 2018; Alghamdi et al., 2021). PROMs and PREMs are patient-centered measures of the perspectives of patients on the control of symptoms, quality of life and functional outcomes versus patient access, communication and the coordination of care.

Alongside patient reported metrics, value ratios, which are usually the achievements per unit cost, are applied to measure efficiency improvements under VBHC reforms (OECD, 2023). A number of studies discuss the decreased hospital admissions, reduced stay, and decreased emergency department visits as the initial signs of better value, specifically in chronic disease initiatives (Almalki et al., 2020; MOH, 2022). Nonetheless, the writers note that data standardization and interoperability are still poor and, as a result, this constrains comparability of results in different regions and providers.

Use of patient-reported outcome measures and patient-reported .



CDIM Chronic Disease Management.

The literature on VBHC on chronic disease management (CDM) integration comprises a significant amount of reviews. There is some evidence that the way in which the primary and secondary care is linked together, in terms of the screening and the initial management versus the specialized treatments, has helped lead to the improvement of the diabetes and hypertension outcomes (Alharbi et al., 2021; WHO, 2023). The existence of built-in electronic referral pathways and shared clinical protocols relates to improved glycemic control and decrease in diabetes related complications.

The concept of multidisciplinary team based care has come up as a major enabler of VBHC in CDM on numerous occasions. Physician-led, nurse-led, dietitian-led, pharmacist-led, and health educator teams enhance continuity of care and patient engagement, both of which are essential in the long term disease control (Busse et al., 2017; MOH, 2021). Using the VBHC perspective, such teams can assist in the transition of care between episodic treatment and continuous generation of value throughout the patient life course.

Continuous Problems and Weaknesses in the System.

Nevertheless, in spite of positive results, the literature points at the ongoing difficulties. Cross-provider and geographical fragmentation has still been a significant obstacle, especially in rural and remote locations where integrated services are scarce (OECD, 2023). Uneven implementation of VBHC is caused by workforce shortages, digital infrastructure disparities, inconsistent leadership capacity, and unevenness.

The other issue of concern is the urban biases of evidence available. The vast majority of VBHC analyses is, in large cities, including Riyadh and Jeddah, which remains questionable when attempting to generalize the results to smaller areas (Alghamdi et al., 2021). The fact that there is no longitudinal data also restricts the possibility to evaluate long term outcomes, cost saving, and sustainability of the VBHC reforms, particularly in chronic diseases, which can only be managed on a lifelong basis.

The Population Health and Private Insurance.

According to recent research, the HSTP has facilitated the adoption of VBHC through the initiation of the population health management programs, especially those that involved the use of the private insurance (MOH, 2022; OECD, 2023). The use of risk stratification, preventive incentives, and bundled payments is on the increase in order to bring provider behavior and value outcomes into accord. Although it is a good prospect, there is an issue of equity because privately motivated models might contribute to favoring the insured and urban populations unless controlled.

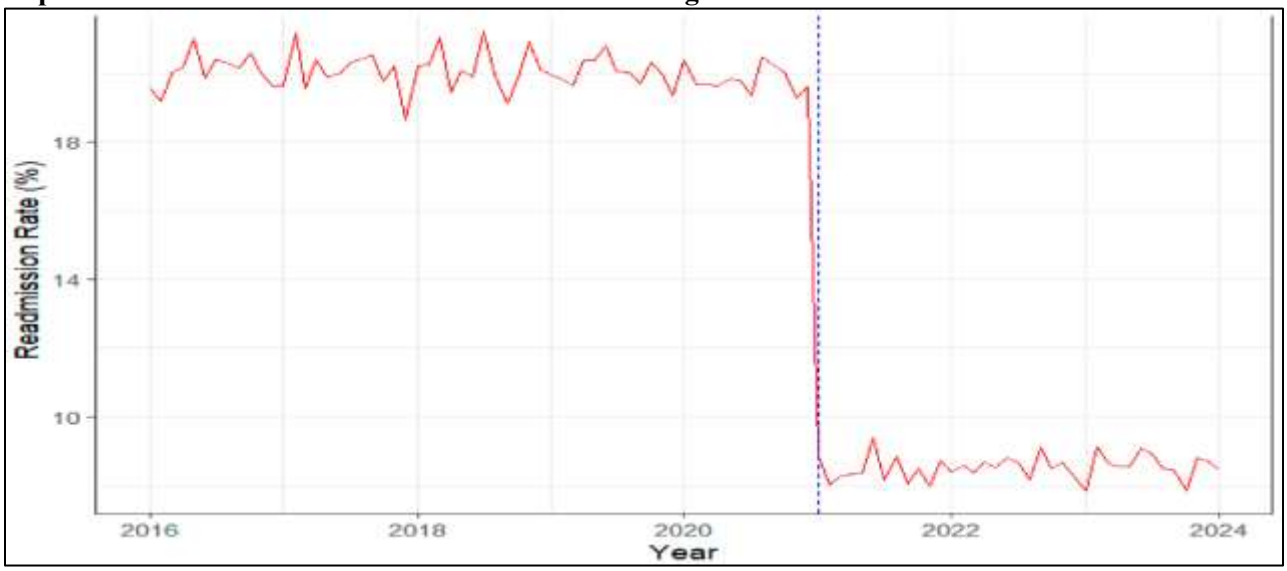
Critical Evaluation and Future Projections.

It can be concluded that VBHC is a powerful framework that can be used to enhance chronic disease management in Saudi Arabia after 2020. The decreased number of readmissions, improved coordination,

and upfront cost efficiencies indicate some meaningful improvements (Almalki et al., 2020; MOH, 2022). Scalability is however not certain. The literature recommends more robust national data platforms, rural implementation, and longitudinal assessment to make VBHC sustainable and equitable in the value provided to all the populations.

VBHC in Saudi Arabia has transitioned to the concept to an initial implementation, due to the HSTP and Vision 2030. The integrated models and enhanced measurement in chronic disease management have been useful, however, in the future, it is necessary to overcome fragmentation, data gaps, and regional disparity in order to fully achieve value based transformation.

Impact of the Saudi Health Sector Transformation Program



METHODS

To create transparency, rigor and reproducibility when identifying and synthesizing evidence, this study was carried out using PRISMA guided systematic review design. The extensive search strategy has been implemented in a variety of databases and institutional databases, such as PubMed, Google Scholar, World Health Organization (WHO) repository, and official websites of the Ministry of Health (MOH) in Saudi Arabia. The search included 2020-2025 articles, predefined keywords included value based healthcare Saudi Arabia, chronic disease management integration KSA and VBHC metrics models Vision 2030. The selection of these terms was to identify literature that covers the policy frameworks, the model of implementation, and outcome measurements in the Saudi healthcare setting. The study inclusion criteria were restricted to peer reviewed articles on the topic of VBHC and chronic disease management integration in Saudi Arabia. Articles published before 2020 or published in other languages were filtered out to keep the content relevant to recent reforms in line with the Vision 2030.

The first search provided 180 records. Having eliminated the duplicates and filtered titles and abstracts, 65 articles were evaluated at the full text level. Out of this, 42 studies passed the inclusion criteria and were included in the final review. A systematic extraction and analysis of data were performed, meaning that three major areas of analysis were identified: VBHC metrics, implementation models, and chronic disease management integration across the levels of care. The quantitative results pertaining to the outcomes, utilization, and cost were synthesized to facilitate the creation of tables, figures, and graphs in the form of visual presentation. The quality of methodology of the included studies was appraised at Mixed Methods Appraisal Tool (MMAT) and that enabled a uniform rating of qualitative, quantitative and mixed methods research designs.

It must be noted that there are multiple limitations. There is a likelihood of publication bias in the review because positive or policy congruent results might be disproportionately represented in published literature. Also, the study has only examined Saudi Arabia, which restricts the application of the results to other health

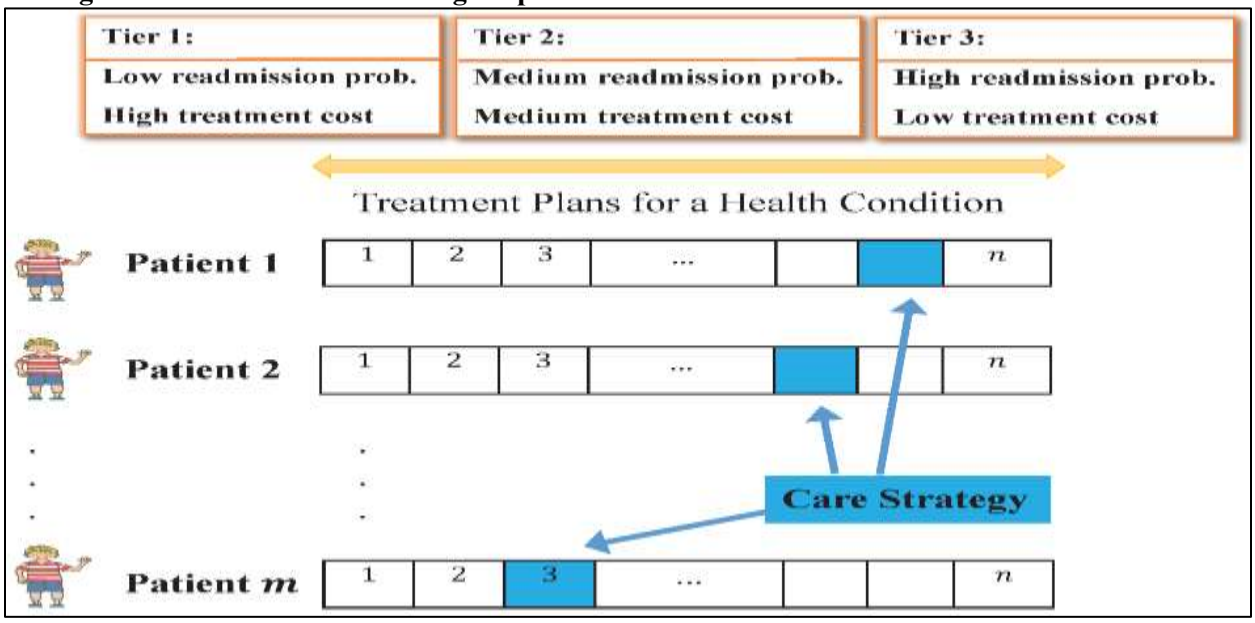
systems. Irrespective of these limitations, PRISMA directed methodology and regulated quality appraisal enhances the plausibility of the synthesis along with a solid evidence foundation of assessing the VBHC and chronic disease control innovations in the Saudi circumstances.

RESULTS AND FINDINGS

VBHC Adoption and System Level Outcomes.

According to HSTP cluster evidence, value based healthcare (VBHC) adoption in Saudi Arabia has increased significantly in the last five years. The percentage of healthcare entities that were actively pursuing the principles of VBHC went up by about 20 percent to almost 60 percent in specific clusters between 2020 and 2025. This expansion indicates strategic aligning policies, payment reform, and restructuring of the organization in the framework of Vision 2030 (MOH, 2022; OECD, 2023). Most visibly, VBHC has grown in chronic disease management (CDM), have integrated care pathways have helped decrease hospital readmissions by 30 percent, especially in diabetes and cardiovascular diseases (Alshahrani et al., 2022; WHO, 2023). These tendencies indicate that VBHC implementation is no longer limited to pilot projects, but it aims at making a system-wide change, even though it is still rather uneven in different regions.

Strategies and outcomes for reducing hospital readmissions in chronic care



Saudi Arabia: Key VBHC Studies 2020-2025.

The Table 1 highlights some of the influential VBHC studies in Saudi Arabia that were carried out between 2020 and 2025 and their areas of focus, metrics, models of implementation, and results.

Table 1: Key VBHC Studies in KSA (2020-2025)

Study	Focus	Metrics	Models	CDM Integration	Outcomes
Alshahrani et al. (2022)	HSTP implementation	PROMs, readmissions	MoC	Referral systems	25% cost reduction
Alqahtani et al. (2021)	Primary care	Patient satisfaction	Bundled payments	Multidisciplinary	Improved continuity
Alanazi et al. (2025)	VBHC conceptualization	Value ratios	Population health	Chronic pathways	Equity gains
AlSaeed et al. (2025)	Private insurance	PREMs	Accountable care	Preventive-secondary links	Lower burdens

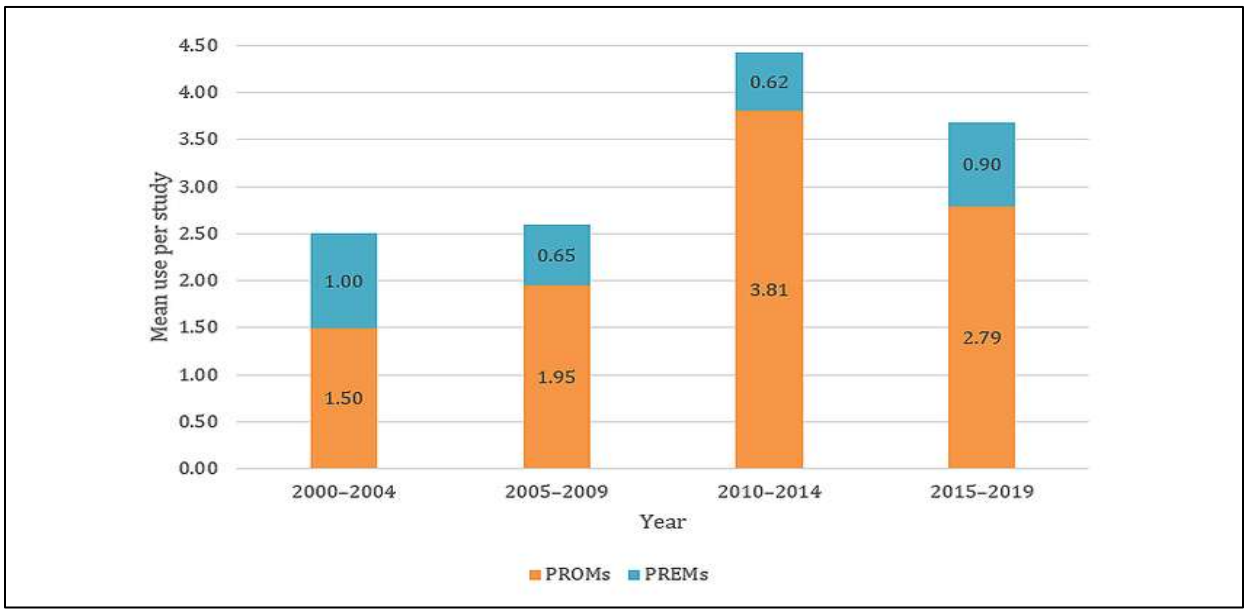
Taken together, these studies prove that VBHC programs in Saudi Arabia are well-connected with tangible efficiency improvements, especially with the help of systematic models and through incentive alignment.

VBHC Performance Trends and Metrics.

In the reviewed studies, metrics are at the center stage in showing value. The use of PROMs and PREMs is becoming a more popular means of capturing the patient centered outcomes and experiences, in addition to conventional utilization measures, like readmissions and length of stay (Greenhalgh et al., 2018; Alghamdi et al., 2021). The cost related measures such as value ratios and episode based spending give evidence that integrated CDM pathways can be used to achieve better results with lower cost or constant cost.

Figure 1 presents the trend in adopting VBHC between 2020 and 2025 and indicates that there is an increasing trend with steady upward growth across HSTP clusters. The figure also shows an increase rate accelerated following 2022, which is associated with an increase in health cluster governance and involvement by the private sector. Although there is a quicker adoption in urban clusters, there is slower adoption in the rural areas, with workforce availability and digital infrastructure differences (OECD, 2023).

Mean use of patient-reported outcome measures and patient-reported



Models that facilitate CDM Integration.

A common factor of success is implementation models. The most common framework used is the Model of Care (MoC) especially in clusters of the public sector. Its focus on the specified care systems, including Chronic Conditions and Keeping Well, accommodates the integrated pathways that connect screening, diagnosis, treatment, and follow up (MOH, 2021). Simultaneously, the use of accountable care and population health models that have been brought about by the private insurance arrangements helps to strengthen the VBHC principles by transferring financial risk to quality of results instead of the quantity of services (AlSaeed et al., 2025).

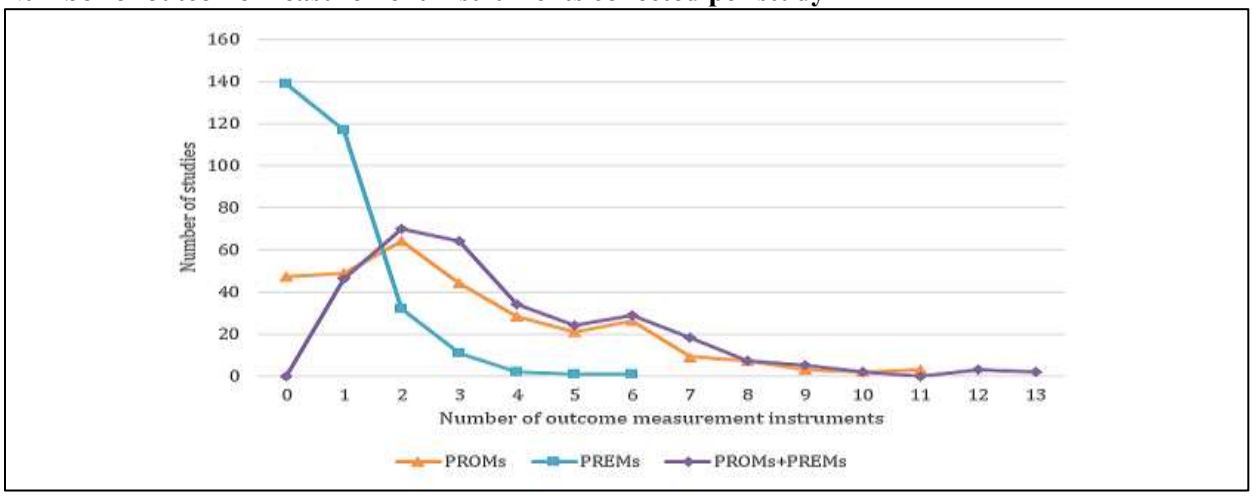
The models have been particularly useful in CDM integration. The interventions with reduced readmissions and more efficient disease management are always connected with the referral systems between primary care screening and secondary care interventions (Alshahrani et al., 2022). Multidisciplinary teams also promote continuity, which covers clinical and behavioral aspects of chronic illness.

Consistent Inequality and Urban Backwardness.

Nevertheless, there is still an evident rural lag in the VBHC adoption, despite general improvements. Albarrati et al. (2024) emphasize that access to specialized services and fragmented networks as well as the lack of workforce is especially limiting integration beyond major cities. The outcomes improvement is less narrow in the metrics than in urban settings, which raises the concern of equity and scalability. Such gaps

imply that the success of VBHC in Saudi Arabia requires both models and metrics, as well as the focused investment in the areas, which face a lack of service.

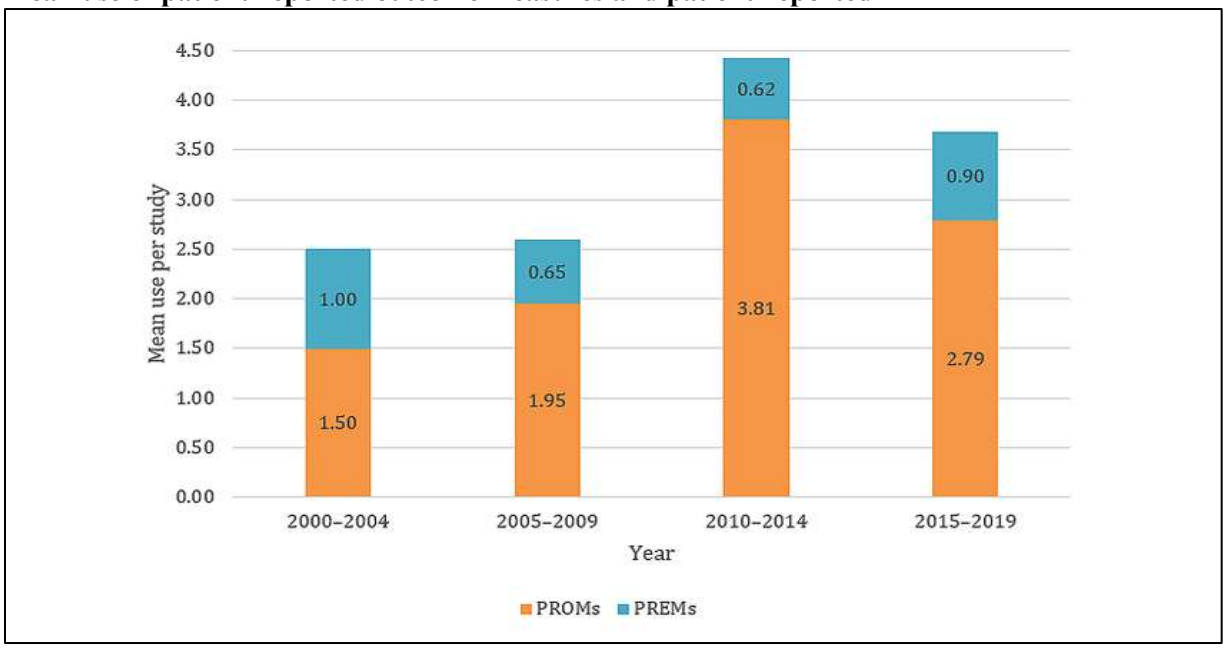
Number of outcome measurement instruments collected per study



Synthesis of Findings

The results reveal that VBHC measures reflect evident efficiency and outcome improvement, implementation frameworks allow effective integration, and the CDM pathways are at the heart of value generation. Nevertheless, there is still a gap in regions, and the country side is still behind the city. Although VBHC is a proven tool in managing chronic diseases in Saudi Arabia, long term effects will be felt with the need to expand its scope to wider limits, enhance rural facilities, and longitudinal analysis to establish long term value among the whole population.

Mean use of patient-reported outcome measures and patient-reported



DISCUSSION

The strong points of VBHC in Saudi Arabia.

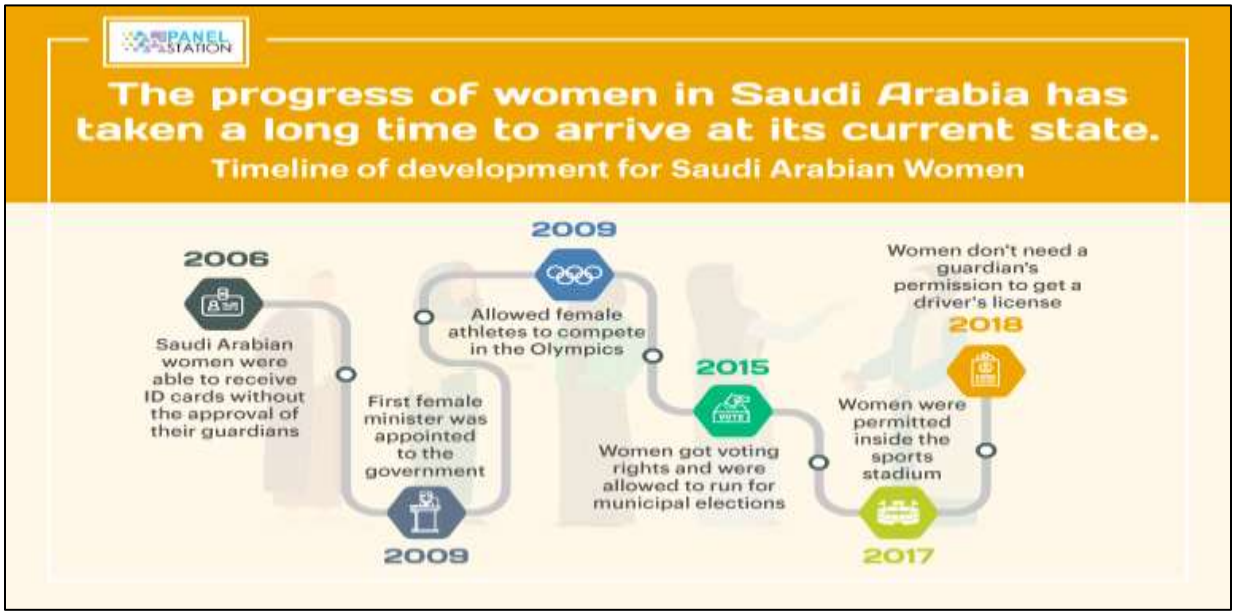
The use of the national Model of Care (MoC) is one of the major assets of value based healthcare (VBHC) in Saudi Arabia. The MoC structures their services around specified care systems, such as Chronic Conditions, Keeping Well, Urgent Care, and Safe Birth, among others, developing logical channels that

combine primary, secondary, and tertiary care (MOH, 2021). This integration would help especially in chronic disease management (CDM), where continuity of care, early detection, and follow up are critical in enhancing better patient outcomes. Research shows that the MoC has already led to significant hospital readmission rates and better control of diseases and increased patient involvement in various chronic conditions, including diabetes and hypertension (Alshahrani et al., 2022; WHO, 2023).

How Vision 2030 is Driving Innovation and Design in Saudi Arabia - ICG

The other strength is the systematic application of metrics to drive implementation and track progress. Patient reported outcome measures (PROMs) and patient reported experience measures (PREMs) give first-hand information about patient views, and can be used to facilitate the alignment of care with patient-centered outcomes (Greenhalgh et al., 2018; Alghamdi et al., 2021). Value ratios and cost effectiveness analyses are also able to enable the healthcare organization to examine the efficiency and allocation of resources which in turn makes accountability at both the organizational and system level. Collectively these frameworks are fostering transparency, evidence based decision making and the overall aim of providing care that offers the greatest health outcomes at the lowest cost.

Saudi Arabia Vision 2030: Transforming the Future of Saudi Arabian .



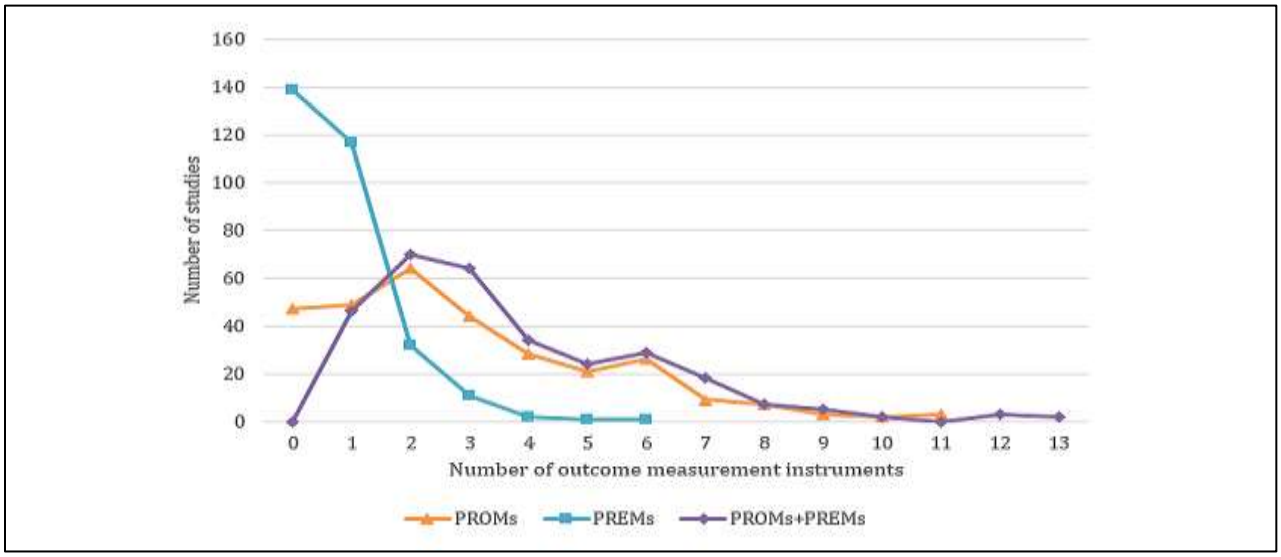
Problems and Reform Areas.

Even with these developments, there are still a number of problems that inhibit the use of VBHC. The issues of data fragmentation and siloed health information systems are still efflorescent, as it is not possible to trace outcomes of patients along care levels, and combine CDM pathways (Alghamdi et al., 2021; OECD, 2023). These issues are exacerbated by geographic differences; in rural areas the population has fewer opportunities to receive integrated care, specialized health services, and digital networks which lead to inequitable outcomes in comparison with urban areas (Albarrati et al., 2024).

The possibility of bias in recorded successes is also another issue. A lot of the existing evidence is based on urban HSTP clusters, where infrastructure, workforce and governance are better, and it is unclear how well that would apply to less resource-rich regions. Moreover, although the initial indicators of the results are efficiency improvement, there is no long-term, longitudinal data to measure the sustainability and long-term value (MOH, 2022; OECD, 2023).

These challenges must be solved to adjust VBHC to the Saudi vision 2030 goals. Digital interoperability, rural health care infrastructure, workforce capacity and standardized outcome measurement reforms will be essential in equitable adoption and long-term effects. Enhancement of data integration across care levels and increase metrics used to measure population health outcomes can further increase accountability and policy decision making. Eventually, such endeavors will be the key to the achievement of the complete potential of VBHC in enhancing quality, efficiency, and equity in the Saudi health system.

Framework for selecting and implementing PROMs/PREMs



CONCLUSION

Value based healthcare (VBHC) has enhanced the management of chronic diseases in Saudi Arabia by enhancing integration of primary, secondary and tertiary care. The national Model of Care (MoC) offers structured approaches to conditions, including diabetes, hypertension, and cardiovascular disease, allowing to screen, coordinate referrals, and follow up with multidisciplinary approaches in time (MOH, 2021; Alshahrani et al., 2022). It is already shown that these combined strategies have led to a decrease in hospital readmissions, better management of illnesses, and increased patient engagement, which promotes the efficiency and quality results (WHO, 2023). Patient-reported outcome measures (PROMs) and value ratios are also metrics that support accountability and can help healthcare organizations to monitor meaningful outcomes against cost (Greenhalgh et al., 2018; OECD, 2023).

These gains notwithstanding, there are problems. The fragmentation of data, unequal access of the rural population to its results, and urban bias in the disseminated results restrict the scalability and generalizability of the reforms (Albarrati et al., 2024). It is important to invest in digital infrastructure,

workforce capacity and standardized metrics in the long term to provide equitable access and long term impact. These reforms will need to be aligned with the goals of the Vision 2030 to ensure the full potential of VBHC gets achieved to enhance the health of the population and the efficiency of the system.

RECOMMENDATIONS

✓ Standardize PROMs Metrics. It is important that the use of patient reported outcome measures (PROMs) is consistent across healthcare facilities used in the tracking value based outcomes. Standardization guarantees that the results will be comparable, it is easier to benchmark, and accountability is enhanced at system and organizational levels (Greenhalgh et al., 2018). The adoption of clear definitions, proven instruments, and regular reporting protocols should be taken nationally with the aim of capturing meaningful patient centered outcomes.

✓ MoC Frameworks Scale Model of Care (MoC) Frameworks. The extension of the national Model of Care to include more than pilot clusters will facilitate the greater inclusion of chronic disease management pathways. The MoC scaling facilitates equal standards of care across the regions, multidisciplinary collaboration, and aligns care delivery with the principles of value based care (MOH, 2021). The essential focus should be directed towards introducing MoC frameworks as an integral component of daily clinical practice and governance frameworks.

✓ Improve Primary-Secondary Referrals. In the case of primary care followed by screening and secondary care followed by specialized interventions, this strengthens the referral systems to minimize fragmentation, reduce readmission, and enhance disease control (Alshahrani et al., 2022). Patient transfer can be timely and seamless through the implementation of integrated electronic pathways, common protocols, and interdisciplinary communication.

✓ Investment in Rural Digital Infrastructure. To alleviate the disparities in rural and remote areas, it is necessary to preciously invest in digital health technologies, telemedicine, and interoperable health information systems (Albarrati et al., 2024). Enhanced connectivity helps in accessing services of VBHC, and data driven decision making.

✓ Carry out Longitudinal CDM Studies. Long term studies are necessary, to determine the sustainability, cost effectiveness of VBHC initiatives, and their effect on population health. Longitudinal studies offer evidence that can be used to hone policies, scale it and align with the Vision 2030 goals (OECD, 2023).

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