



Value-Based Health Care Delivery in Cardiovascular Care: Review of Models and Outcomes

Batoul Choueikani¹, Enaam Rudwan², Zahra Osama Ahmed Babeker³, Alidjanov Xodjiakbar Kashipovich^{4,5}, Doaa Mohamed Taha Mohamed⁶, Malaz Kamal Mohamed Hassan⁷, Reem Saeed⁸, Leena Saeed⁹, Ahmed Rudwan¹⁰

¹Hospital Function, Ebn Sina Medical, Doha, Qatar

²Obstetrics and Gynecology, Hamad Medical Corporation, Doha, Qatar

³Faculty of Medicine and Surgery, International University of Africa, Khartoum, Sudan

⁴Department of Faculty and Hospital Surgery №1, Tashkent State Medical University, Tashkent, Uzbekistan

⁵Department of Angioneurology, Republican Special Center of Surgical Angioneurology, Tashkent, Uzbekistan

⁶Pediatric Department, Sidra Medicine, Doha, Qatar

⁷Faculty of Medicine and Surgery, The National Ribat University, Khartoum, Sudan

⁸Internal Medicine Department, Hamad Medical Corporation, Doha, Qatar

⁹Medical Commission Department, Ministry of Public Health, Doha, Qatar

¹⁰Cardiology Department, Hamad Medical Corporation, Doha, Qatar

Email: Leenasaeed95@hotmail.com

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Abstract

Health care systems globally are under growing strain due to rising costs, aging populations, and the increasing burden of chronic diseases, alongside inefficiencies in service delivery. Traditional fee-for-service models, which incentivize the quantity rather than the quality of care, have often led to fragmented services, inconsistent outcomes, and escalating expenditures. VBHC has emerged as a model that emphasizes delivering the best possible patient outcomes relative to the cost of care across the entire care continuum. Key features of VBHC include coordinated, outcome-focused care, systematic measurement of clinical results and costs, team-based collaboration, and linking reimbursement to performance. VBHC in cardiovascular care is implemented through integrated care models, bundled payments, and accountable or population-based payment systems. Integrated models use multidisciplinary teams to coordinate care across the continuum, reducing readmissions and improving clinical and patient-centered outcomes. Bundled payments align financial incentives across an episode of care to promote cost control, quality improvement, and reduced care variation. Accountable care and population-based models shift focus from service volume to population health outcomes, encour-

aging preventive strategies, coordinated chronic disease management, and cost containment. Value in cardiovascular care is measured using a comprehensive framework that integrates patient-reported outcome measures (PROMs), objective clinical endpoints (e.g., mortality, readmissions, major adverse events), and economic evaluations to assess outcomes achieved relative to resources utilized.

Subject Areas

Cardiology

Keywords

Value-Based Health, Cardiology, Fee-for-Service, Patient-Centered Care, Integrated Health Care, Patient Outcome

1. Introduction

Health systems worldwide are experiencing increasing pressure due to rising health care expenditures, demographic shifts toward aging populations, the growing burden of chronic diseases, and persistent inefficiencies in care delivery. Traditional fee-for-service payment models, which incentivize service volume rather than quality or outcomes, have been associated with fragmented care, variable performance, and escalating costs [1]. These challenges have intensified the search for alternative health care delivery models that prioritize quality, efficiency, and patient-centered outcomes.

Value-based health care (VBHC) has emerged as a strategic framework aimed at addressing these systemic shortcomings by redefining the fundamental objectives of health care delivery. VBHC emphasizes maximizing value for patients, where value is defined as the health outcomes achieved per unit cost across the complete cycle of care [2]. This paradigm shift moves the focus away from isolated clinical services toward coordinated, outcome-driven care that aligns clinical decision-making with what matters most to patients.

Central to value-based health care delivery is the systematic measurement of patient outcomes and costs, the organization of care around specific medical conditions rather than provider specialties, and the alignment of reimbursement mechanisms with performance and results [3]. These principles encourage collaboration among multidisciplinary teams, reduce unwarranted variation in clinical practice, and promote transparency and accountability within health systems. Furthermore, VBHC aligns closely with broader health system performance frameworks, such as the Triple Aim, which seeks to improve population health, enhance patient experience, and reduce per capita costs of care [4].

Despite its promise, the implementation of value-based health care delivery is complex and presents several challenges. These include the need for robust health information systems, standardized outcome measures, cultural transformation

among providers, and supportive regulatory and policy environments [5]. Nevertheless, as health systems strive to achieve sustainable, high-quality, and patient-centered care, value-based health care delivery continues to gain prominence as a critical approach for improving health outcomes while ensuring efficient use of limited resources [6].

The aim of this review is to provide a comprehensive examination of VBHC delivery in the context of cardiovascular care. The review explores the conceptual foundations and key principles of VBHC, examines models of VBHC implementation in cardiovascular practice, and analyzes the clinical and economic outcomes used to measure value in cardiovascular interventions. In addition, it discusses the challenges and barriers associated with implementing VBHC in cardiovascular care and considers emerging strategies and future directions for advancing value-based approaches in this field. By synthesizing current evidence and frameworks, the review seeks to inform clinicians, policymakers, and health system stakeholders on how VBHC can optimize patient outcomes, enhance care efficiency, and promote the sustainability of cardiovascular services.

2. Concept of Value-Based Health Care Delivery

2.1. Definition of Value-Based Health Care Delivery

VBHC is increasingly recognized as a patient-centered and outcome-oriented approach to health system performance that seeks to balance the improvement of health outcomes with the efficient use of resources. Recent literature commonly characterizes VBHC as an approach that prioritizes patient outcomes relative to the costs of achieving those outcomes, thereby shifting focus from the traditional volume-driven model to one that emphasizes effectiveness and sustainability [7] [8]. A recent scoping review found that most contemporary definitions conceptualize value primarily as the ratio of health outcomes to costs over the course of care delivery, underscoring the central role of measurable patient benefit in VBHC frameworks [7].

Despite this core agreement, variations in definitions reflect differences in emphasis and scope. Some recent studies highlight VBHC as an integrative strategy that not only quantifies outcomes and costs but also actively reorganizes care processes around patient needs and full care cycles, often incorporating leadership and patient engagement as essential components of value creation [7]. This interpretation aligns with broader conceptualizations that emphasize not only outcome measurement but also strategic implementation and interdisciplinary collaboration as defining features of VBHC [7].

Other contemporary perspectives expand the definition to include broader health system goals, such as improving the quality and experience of care while ensuring the sustainability of health services in the face of resource constraints. For example, value-based healthcare has been described as a sustainable, equitable, and transparent use of healthcare resources to achieve improved patient-centered outcomes, reflecting a more holistic view that extends beyond simple cost-

outcome ratios to incorporate principles of equity and system performance [9].

Recent literature converges on the idea that VBHC fundamentally aims to maximize meaningful patient outcomes relative to cost, but diverges in how comprehensively definitions integrate structural, organizational, and policy dimensions. These differences highlight the evolving and multidimensional nature of VBHC as both a conceptual framework and a practical strategy for health system reform.

2.2. Key Principles of Value-Based Health Care Delivery

VBHC is guided by a set of core principles that collectively aim to optimize patient outcomes, improve care efficiency, and promote sustainability within health systems. Central to VBHC is the focus on patient-centered outcomes, which emphasizes the measurement and achievement of results that matter most to patients rather than the volume of services delivered [2] [3]. This principle underscores the importance of systematically capturing clinical outcomes, patient-reported outcomes, and functional improvements across the entire care cycle.

Another key principle is the integration and organization of care around medical conditions or patient needs rather than traditional specialty silos. This approach encourages the development of multidisciplinary care teams, often structured as integrated practice units (IPUs), which coordinate care across the full cycle of treatment, ensuring continuity, efficiency, and accountability for outcomes [3] [6].

Measurement of costs across the full care cycle is also fundamental, as it allows providers and policymakers to evaluate the efficiency of care delivery relative to achieved outcomes. By focusing on outcomes per dollar spent, VBHC seeks to maximize value while promoting sustainability of health systems [2] [6].

Additionally, VBHC emphasizes alignment of payment models and incentives with performance, moving away from fee-for-service structures toward mechanisms that reward quality and value rather than volume of care. This alignment fosters accountability among providers and supports continuous improvement in clinical outcomes [2].

Finally, system-level implementation, leadership engagement, and cultural transformation are recognized as critical principles. Successful adoption of VBHC requires organizational commitment, interdisciplinary collaboration, and patient involvement to ensure that outcome measurement and care redesign translate into meaningful improvements in value [3] [6] (Table 1).

3. Comparison of VBHC with Fee-for-Service Models (FFS)

Health systems worldwide are increasingly reassessing traditional FFS payment structures in favor of VBHC models to address persistent challenges in quality, cost, and care coordination. The FFS model reimburses providers for each discrete service—such as office visits, procedures, and tests—which creates incentives for high volumes of billable activities, potentially leading to unnecessary care, fragmented approaches, and limited rewards for quality improvements [10] [11]. In

contrast, VBHC realigns financial incentives with patient outcomes and cost efficiency by rewarding providers for improving health results rather than service volume, emphasizing preventive care and collaboration across care teams [11] [12].

Table 1. Summary of the key *principles of value-based health care delivery*.

Key Principle	Description	Example in Practice	Reference
Patient-Centered Outcomes	Focus on measuring and achieving outcomes that matter most to patients, including clinical results, functional improvements, and patient-reported outcomes.	Tracking survival, quality of life, and functional recovery after cardiac surgery.	[2] [3]
Care Integration and Organization	Care is organized around patient conditions rather than medical specialties, encouraging multidisciplinary teams and coordinated care across the full cycle.	Formation of integrated practice units (IPUs) for heart failure management, including cardiologists, nurses, dietitians, and rehabilitation specialists.	[3] [6]
Cost Measurement Across Care Cycle	Evaluating the total cost of care for a patient over the full treatment cycle to ensure efficiency relative to outcomes achieved.	Calculating the complete cost of a percutaneous coronary intervention including pre-op evaluation, procedure, post-op care, and follow-up.	[2] [6]
Alignment of Payment with Value	Payment systems are structured to reward outcomes and quality rather than service volume, encouraging providers to focus on effectiveness.	Bundled payments for cardiac procedures based on successful outcomes and reduced readmission rates.	[2]
System-Level Implementation and Cultural Change	Successful VBHC requires leadership engagement, organizational commitment, interdisciplinary collaboration, and patient involvement.	Hospital leadership implementing outcome dashboards, training staff in patient-centered care, and involving patients in care planning.	[3] [6]

A recent large-scale observational analysis provides concrete evidence illustrating how value-based payment models perform in real-world settings compared with traditional fee-for-service arrangements. This study examined administrative and quality-performance data from more than 3.3 million Medicare Advantage beneficiaries across the United States, comparing provider organizations operating under value-based contracts with those reimbursed exclusively through FFS [13]. Value-based contracts in this analysis included a spectrum of arrangements, ranging from pay-for-performance to one-sided and two-sided risk models, allowing the investigators to assess whether increasing financial accountability was associated with better outcomes. Performance was evaluated using 15 standardized clinical quality measures commonly used by Medicare, such as control of blood pressure, diabetes management, preventive screenings, and medication adherence. The results showed that providers participating in value-based payment models achieved consistently higher quality scores across all measured indicators, with an average improvement of 6.7 percentage points compared with FFS providers ($P < 0.001$) [13]. Importantly, the magnitude of improvement was particularly notable for chronic disease management, where rates of adequate blood glucose control were 25.5% higher and blood pressure control 23.3% higher under value-based arrangements. The study also demonstrated a dose-response relation-

ship: providers assuming greater financial risk (two-sided risk contracts) outperformed those in less advanced value-based models, suggesting that stronger alignment between payment and outcomes yields greater quality gains [13]. In this context, “dose” refers to the extent of financial accountability embedded in the value-based contract. For example, some contracts involved pay-for-performance models, where providers receive modest bonuses for meeting targets but bear little financial risk, while others included one-sided risk models, where providers could share in savings if outcomes and costs improved, and two-sided risk models, where providers could both share in savings and be penalized for underperformance. The analysis found that as providers took on greater financial responsibility, their performance on clinical quality measures improved correspondingly. Specifically, providers in two-sided risk arrangements demonstrated higher rates of blood pressure and blood glucose control compared with one-sided or pay-for-performance arrangements, suggesting that the stronger the incentive alignment with patient outcomes, the greater the quality improvement [13]. These findings help clarify the practical mechanisms by which VBHC improves care by incentivizing proactive management, prevention, and coordination while also highlighting that benefits are not uniform and depend on the design and maturity of the payment model (Figure 1).









Fee-for-Service (FFS)	Value-Based Health Care (VBHC)	
Comparison of Fee-for-Service vs. Value-Based Health Care		
 Payment Method	Per Service: Office Visits, Tests, Procedures	Outcome-Based: Pay-for-Performance, Risk-Sharing Models
 Incentive Focus	High Volume of Services	Quality and Patient Outcomes
 Quality Performance	Limited Quality Incentives	+6.7% Higher on 15 Quality Measures
 Chronic Disease Management	Lower Control Rates	Blood Glucose Control: +25.5% Blood Pressure Control: +23.3%
 Dose-Response Effect	Not Applicable	Better Outcomes with Two-Sided Risk
 Implementation Complexity	Simple Administration	Advanced Data & Analytics Needed
 Care Coordination	Fragmented Care	Integrated & Preventive Care
 Cost Impact	Higher Costs from Overuse	Reduced Costs with Better Management

Figure 1. Comparison of FFS vs VBHC delivery.

4. Models of Value-Based Health Care Delivery in Cardiovascular Care

4.1. Integrated Care Models

Integrated care models represent a cornerstone of value-based health care delivery

in cardiovascular care by organizing care around the patient's health needs across the continuum of services [14]. Within this framework, multidisciplinary teams—including cardiologists, primary care providers, nurses, allied health professionals, and sometimes social care specialists collaborate to coordinate diagnosis, treatment, follow-up, and prevention for patients with chronic cardiovascular conditions, thereby minimizing fragmentation, enhancing continuity, and improving outcomes [15]. Systematic evidence indicates that these models can significantly reduce hospital readmissions, particularly when structured follow-up, discharge planning, and nursing-led transitional interventions are implemented, with reported reductions ranging from 17% to 35% in cardiac populations [14]. Reviews also indicate that integrated care interventions for patients with cardiovascular diseases can reduce mortality, adverse events, and improve health-related quality of life, physical and mental functioning, and self-management behaviours, although evidence quality varies and heterogeneity remains high across studies [15] [16]. A defining strength of integrated care under VBHC is its capacity to align care processes with value-based principles, including measurement of clinical and patient-reported outcomes, shared accountability among providers, and proactive management of complex comorbidities [16] [17]. In cardiovascular settings, integrated models such as multidisciplinary clinics or condition-specific pathways (e.g., combined cardiology-primary care clinics) facilitate early interventions, guideline adherence, risk factor optimization, and seamless transitions across care settings, which are key mechanisms for achieving improved clinical and patient-centred outcomes within value-based contracts [16] [17]. However, successful implementation frequently depends on robust information technology, interoperable health records, and supportive reimbursement structures that incentivize coordination and outcome measurement, underscoring the need for system-level investments alongside clinical redesign [16] [17].

4.2. Bundled Payment Models

Bundled payment models are a key component of value-based health care delivery and are defined as a single, predetermined payment that covers all services related to a specific clinical condition or procedure across a defined episode of care, rather than reimbursing providers separately for each individual service as occurs under fee-for-service payment systems [18]. In cardiovascular care, bundled payments are commonly applied to high-cost and high-utilization conditions such as acute myocardial infarction, heart failure exacerbations, percutaneous coronary intervention, and coronary artery bypass graft surgery, with episode durations often lasting up to 90 days following the index hospitalization [19]. These models are designed to promote value by aligning financial incentives with improved care coordination, cost containment, and quality outcomes, holding providers collectively accountable for total episode spending while linking reimbursement to performance on established quality metrics such as readmission rates, complications, and mortality [20]. By encouraging collaboration among hospitals, cardiologists,

surgeons, and post-acute care providers, bundled payment arrangements aim to reduce unwarranted variation in care delivery, minimize avoidable readmissions, and optimize resource utilization across the continuum of cardiovascular care [19] [21]. Although early evaluations of cardiac bundled payment programs, such as the Medicare Bundled Payments for Care Improvement initiative, suggest potential reductions in episode spending without adverse effects on quality, outcomes vary across conditions and settings, highlighting the importance of robust risk adjustment, data infrastructure, and provider engagement to ensure equitable and sustainable implementation [20] [21].

4.3. Accountable Care and Population-Based Models

Accountable care and population-based payment models are central components of value-based health care delivery that shift the focus from individual service volume to outcomes and cost control for entire populations with shared clinical risk, including those with cardiovascular conditions. Accountable Care Organizations (ACOs) represent a key population-based model in which groups of providers, hospitals, and clinicians collectively assume responsibility for the quality, cost, and coordination of care for a defined patient population, with financial incentives tied to cost savings and quality benchmarks across all care settings [22]. In cardiovascular care, ACOs and similar population-based models promote proactive disease management by encouraging early identification of risk factors, coordinated chronic disease care pathways, and integrated teams that span primary care, cardiology, and specialty services, thereby aiming to reduce preventable hospitalizations, avoidable readmissions, and unwarranted care variation that are common among patients with heart failure, coronary artery disease, and other cardiovascular conditions [22]. By aligning payment with performance metrics and overall health outcomes, population-based models also support long-term risk stratification and resource optimization, fostering investment in preventive services and multidisciplinary interventions that improve population health while containing spending [23]. Although barriers remain, including substantial data infrastructure requirements and the need for reliable quality measurement frameworks, accountable care and population-based payment models have shown considerable promise in promoting value-based cardiovascular care and enhancing population-level health outcomes [23].

5. Outcomes Used to Measure Value in Cardiovascular Care

5.1. Patient-Reported Outcomes Measures (PROMs)

In value-based cardiovascular care, PROMs are essential tools for evaluating healthcare effectiveness from the patient perspective by systematically capturing information on symptoms, functional capacity, psychosocial well-being, and health-related quality of life. Unlike conventional clinical endpoints that prioritize survival or procedural success, PROMs provide complementary insights into the extent to which cardiovascular interventions translate into meaningful improve-

ments in daily functioning, quality of life, and long-term health status across diverse cardiovascular conditions, including heart failure, ischemic heart disease, and valvular disorders. The integration of PROMs enables clinicians and healthcare systems to assess outcomes relative to resource utilization, thereby supporting value-oriented clinical decision-making. Moreover, the longitudinal application of PROMs facilitates ongoing monitoring of patient progress and identification of unmet needs that may not be apparent through clinical indicators alone. As healthcare delivery increasingly transitions toward outcome-based reimbursement frameworks, the systematic incorporation of PROMs into cardiovascular care pathways strengthens patient-centered evaluation and enhances the comprehensive assessment of value in cardiovascular healthcare [24].

5.2. Clinical Outcomes Measures

In value-based care delivery, clinical outcome measures are fundamental to assessing the effectiveness, safety, and quality of cardiovascular care by focusing on objective endpoints that reflect disease control and treatment success. These outcomes commonly include mortality, hospital re-admissions, complication rates, and major adverse cardiovascular events (MACE) such as myocardial infarction, stroke, and heart failure hospitalization [1] [24]. By emphasizing outcomes rather than service volume, clinical outcome measures enable healthcare systems to evaluate whether cardiovascular interventions generate meaningful health benefits relative to the resources used, which is a core principle of value-based healthcare [2]. Standardized and risk-adjusted outcome measures facilitate comparisons across providers and care settings, promote accountability, and support performance-based reimbursement models [1] [24].

5.3. Economic Outcomes Measures

Economic outcome measures are fundamental to value-based cardiovascular care, as they quantify the costs associated with delivering effective healthcare relative to the health benefits achieved. These measures encompass direct medical costs, including hospitalizations, diagnostic procedures, interventions, medications, and outpatient services, as well as indirect costs such as lost productivity, long-term care, and costs related to complications or disease progression [2] [25]. By systematically evaluating these economic factors, healthcare systems can determine whether interventions provide optimal value, defined as the ratio of meaningful health outcomes to resources expended [26]. Methodologies such as cost-effectiveness analyses, cost-utility assessments, and resource utilization evaluations enable payers and providers to prioritize interventions that maximize patient benefit while maintaining financial sustainability. When integrated with clinical outcomes and patient-reported measures, economic outcomes contribute to a comprehensive framework for assessing value, guiding evidence-based decision-making, resource allocation, and performance-based reimbursement strategies in cardiovascular care [25] [26].

6. Evidence on the Impact of Value-Based Health Care Delivery in Cardiovascular Care

VBHC delivery has increasingly shaped cardiovascular practice by shifting the focus from volume-driven services to outcome-focused, cost-conscious, and patient-centered care. These models emphasize the targeted use of diagnostic and therapeutic innovations, ensuring that advanced cardiology interventions reach patients most likely to derive meaningful clinical benefit. By supporting coordinated care pathways, early risk stratification, and preventive strategies, VBHC approaches can reduce low-value testing, improve efficiency, and enhance cardiovascular outcomes across the care continuum. Furthermore, incorporating digital health technologies, such as remote patient monitoring, enables proactive management of chronic cardiovascular conditions and contributes to reductions in hospital utilization and overall healthcare expenditures. However, the success of value-based cardiovascular care depends on careful implementation that addresses social and clinical risk factors to prevent widening disparities in outcomes [27].

Evidence from a recent scoping review of VBHC models in cardiology indicates that such approaches can substantially improve care quality and reduce system-level costs when outcomes are prioritized over service volume [28]. Empirical data from heart failure programs further support these benefits: patients managed under structured, value-based frameworks experienced lower all-cause mortality at 12 months (10%) compared with conventional care (19%), with statistical significance reported ($p < 0.05$). In addition to survival improvements, these programs were associated with reductions in hospital admissions and overall healthcare spending, highlighting the dual clinical and economic advantages of value-based care [29].

A Delphi study was conducted to determine the most meaningful outcomes for value-based care in coronary artery disease [30]. Following consensus, 11 of 13 proposed outcomes were rated as important or very important by more than 75% of stakeholders. Preventing heart attacks and avoiding repeat cardiac procedures achieved unanimous agreement, while preventing death and myocardial infarction emerged as the highest-priority outcomes overall. Importantly, patients assigned greater weight to symptom relief—particularly reductions in chest pain and dyspnea—than non-patient stakeholders, underscoring the importance of integrating patient-centered outcomes alongside traditional clinical endpoints in value-based cardiovascular care. Despite these advantages, evidence from value-based payment (VBP) programs demonstrates mixed results. Bundled payment models, such as the BPCI-A program, have achieved modest reductions in spending, though improvements in clinical outcomes are limited, and results are not consistently superior for either medical or surgical episodes [31] [32]. Similarly, analyses of the Hospital Value-Based Purchasing (HVBP) program show limited effectiveness in reducing readmissions, with some data even indicating a modest positive association with higher readmission rates. These findings suggest that

HVBP, alone or in combination with the Hospital Readmissions Reduction Program (HRRP), may not consistently achieve intended improvements in quality or cost reduction [33].

Systematic reviews of broader VBP models—including shared savings and pay-for-performance—report generally positive effects on clinical outcomes and healthcare expenditures, such as reductions in preventable hospitalizations and total costs. However, many studies indicate minimal impact on patient satisfaction or access to care, with providers expressing concerns over misaligned incentives, implementation complexity, and insufficient experience with these models [34]. A comprehensive review of nationwide Medicare VBP reforms underscores that outcomes vary by program: the HRRP has shown significant reductions in readmissions and spending for targeted cardiovascular conditions, whereas programs such as BPCI have not consistently improved cardiovascular quality measures or reduced costs [35].

Taken together, these findings suggest that value-based cardiovascular care has substantial potential to improve outcomes, efficiency, and patient-centeredness, but its effectiveness depends on program design, implementation strategies, and inclusion of both clinical and patient-prioritized outcomes.

7. Challenges in Implementing Value-Based Health Care in Cardiovascular Context

A real-world implementation study examining the transition toward value-based cardiovascular care identified multiple structural and organizational challenges that needed to be addressed. Central among these challenges was the necessity to establish a shared vision among healthcare providers operating across the full continuum of care, alongside the need to secure access to routine clinical practice data in order to generate meaningful insights into patient-relevant outcomes and facilitate quality improvement efforts. At the time, care delivery was predominantly organized in silos, which limited effective collaboration and coordination between providers. Although the quality of care delivered to patients was generally regarded as adequate, clinicians lacked consistent and systematic insight into outcomes that matter most to patients, while quality improvement systems were largely restricted to individual institutions. Overcoming these barriers required the development of a regional quality framework capable of supporting continuous, outcome-driven improvement. Furthermore, the existing fee-for-service reimbursement structure represented an additional challenge, as it has the potential to discourage collaboration and impede alignment with value-based care objectives [36].

Most studies identified the rationale for value-based health care initiatives as stemming from immediate organizational-level challenges, particularly the increasing volume of health care services required to manage specific conditions in the context of variable outcomes and escalating costs. Key motivations for adopting VBHC approaches included the goal of delivering care more equitably to

served populations, the need for more responsive and adaptive care delivery, and the importance of improving health care professionals' awareness of the costs associated with the care they provide. In many cases, these organizational challenges were situated within broader health system pressures, such as rising national health care expenditures, uncertainty or variation in care quality outcomes, and ineffective payment models most notably fee-for-service systems that incentivize volume rather than value. Additional system-level challenges included fragmented care delivery, persistent health inequities, and ongoing demographic and epidemiologic transitions characterized by population aging and an increasing burden of chronic disease. A smaller proportion of studies further highlighted the limited incorporation of patient-relevant outcomes in health care decision-making processes [37].

Despite the recognized benefits of value-based health care models and a growing global interest in improving societal well-being through their adoption, several challenges continue to hinder the widespread implementation of VBHC in current health care systems. The literature identifies six principal barriers to deployment. First, inefficiencies in health care delivery persist, characterized by limited standardization and substantial heterogeneity in cardiac care and arrhythmia management. Second, inconsistencies in data collection and reporting, together with the absence of standardized frameworks, complicate cross-system comparisons and limit interoperability of measurement tools. Third, disparities in resource allocation remain evident, with some regions overinvesting in specific areas while others experience underinvestment; these imbalances are particularly apparent between rural and urban settings and between high-income and developing health care systems, where the latter often struggle with fundamental issues such as coverage and access to care. Fourth, the complexity of reimbursement and payment structures, including variability in financial models and misalignment of incentive programs with VBHC objectives, poses a significant challenge, especially in regions that have not fully transitioned toward value-based payment systems. Fifth, regulatory and policy complexity represents an additional barrier, as variations in health care regulations across regions and countries create difficulties in complying with multiple governance frameworks. Finally, variability in quality and outcomes, driven by limited harmonization and standardization across health care systems, complicates the consistent measurement and comparison of cardiovascular outcomes [28].

Evidence suggests that several practical strategies can facilitate the successful implementation of VBHC in cardiovascular systems. The development and adoption of standardized outcome measurement frameworks—such as the International Consortium for Health Outcomes Measurement (ICHOM) Standard Set for coronary artery disease have enabled consistent reporting of both clinical indicators and patient-reported outcomes, thereby supporting benchmarking, transparency, and continuous quality improvement across institutions [38]. Strengthening digital infrastructure, including interoperable electronic health records and par-

ticipation in cardiovascular registries, further enhances routine outcome tracking and data sharing, helping to reduce fragmentation and promote coordinated care delivery [20]. In addition, alternative reimbursement structures, particularly bundled payment programs for cardiac episodes of care, have demonstrated the potential to align financial incentives with quality metrics, encouraging collaboration among providers while maintaining or improving outcomes and moderating costs [20]. Active engagement of clinicians and patients in defining meaningful outcomes and embedding patient-reported outcome measures into routine workflows has also been identified as a critical enabler of cultural transformation toward value-oriented practice. Collectively, these approaches indicate that integrating standardized measurement, robust data systems, and incentive-aligned payment models can meaningfully address structural and organizational barriers to VBHC in cardiovascular care.

8. Future Directions in Value-Based Cardiovascular Care

The future of value-based cardiovascular care will depend on the maturation and refinement of existing models, rather than the introduction of entirely new frameworks. As current evidence demonstrates variable results across different value-based initiatives, future efforts should focus on improving program design, strengthening implementation strategies, and enhancing alignment between clinical practice, outcomes measurement, and payment systems. In cardiovascular care, this includes refining bundled payment models, population-based approaches, and integrated care pathways to better reflect disease complexity, patient heterogeneity, and long-term outcomes.

Advancements in health information technology are expected to play a central role in supporting the next phase of value-based cardiovascular care. Improved data interoperability, real-time outcome tracking, and standardized reporting of clinical, economic, and patient-reported outcomes will enable more accurate assessment of value across the full cycle of care. Enhanced data systems may also facilitate benchmarking across institutions, support risk adjustment, and enable continuous quality improvement at both provider and system levels.

Greater integration of patient-reported outcome measures into routine cardiovascular care is another critical future direction. Expanding the systematic use of PROMs can help ensure that value assessments reflect outcomes that matter most to patients, including functional status, symptom burden, and quality of life. Embedding these measures into clinical workflows and performance evaluation frameworks may further strengthen patient-centered care and shared decision-making within value-based models.

Policy and payment reform will also remain essential for sustaining progress in value-based cardiovascular care. Continued transition away from fee-for-service reimbursement toward payment models that reward outcomes, coordination, and long-term value is necessary to support meaningful care transformation. However, future reforms must address identified challenges, including provider bur-

den, misaligned incentives, and inequities in resource allocation, to ensure that value-based approaches are both effective and equitable.

Finally, broader system-level adoption of value-based cardiovascular care will require sustained leadership engagement, cultural change, and investment in workforce development. Building provider capacity to deliver coordinated, outcome-driven care and fostering collaboration across disciplines and care settings will be essential to realizing the full potential of value-based health care in cardiovascular services.

9. Conclusion

VBHC represents a paradigm shift in cardiovascular care, prioritizing meaningful patient outcomes relative to cost over service volume. This review highlights the conceptual basis of value-based cardiovascular care, key principles guiding its implementation, and its practical application through models such as integrated care pathways, bundled payments, and population-based approaches. Value-based programs have demonstrated the potential to improve efficiency, optimize resource use, and enhance patient outcomes by prioritizing meaningful clinical results over service volume. While some initiatives show clear benefits in utilization, cost, and hospital resource management, evidence for consistent improvements in clinical outcomes across programs remains variable, underscoring the importance of careful program design, robust data infrastructure, and integration of patient-centered measures. Despite challenges including fragmented care, data limitations, and reimbursement variability, VBHC offers a promising approach to patient-centered, efficient, and sustainable cardiovascular care. With continued refinement, evaluation, and system-level commitment, VBHC has the potential to deliver measurable improvements in outcomes and overall health system performance.

Conflicts of Interest

The authors declare no conflicts of interest.

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