

# The Impact of Value-Based Healthcare Reimbursement Models on Healthcare Organizations: (Review Artical)

MOTEB ROSHAID AL-SHAMARI, MOTEB FREAHA AL SHAMMARI, SULTAN FARES ALSHAMARI, GHADYAN SALEM AL SHAMMARI, YOUSSEF SANT AWAD ELRASHEDI, AHMED SHEMAN AL SHARARI, ABDULAZIZ SHAEM AL SHARARI, AMMASH OTHEAH AL SHARARI, SHAIME HALEL AL ENAZI, OBAID SAMAH AL RASHIDI, SAMI FARHAN ALSHAMARI, MOSA GHANEM AL RASHIDI and ABDULKHAREEM GATHEN AL SHAMMARI

KSA, National Guard Health Affairs

## Abstract

**Background:** In the ongoing effort to create a healthcare system that can be maintained throughout time, value-based reimbursement techniques have been explored. Success for deployed models is determined by analyzing precise data of patients' consumption profile in relation to their clinical state and the risk balance among all stakeholders. The use of precise patient-level cost and outcome data differs across various payment methods, including as fee-for-service and value-based bundled payment models, leading to the establishment of distinct risk agreements among stakeholders.

**Aim of Study:** To ensure the healthcare system remains financially sustainable and delivers social consequences, it is crucial to have a comprehensive grasp of value-based reimbursement agreements and recognize them as a means of managing risks. This study provides a detailed examination of how value-based reimbursement systems affect the healthcare system, including both social and financial aspects.

**Methods:** The study used a rigorous examination of the existing literature on value-based reimbursement to determine the specific effects of various techniques on healthcare systems. Following the literature review, a conceptual definition of value-based reimbursement agreements was provided. These agreements serve as means to achieve both social and financial benefits on the healthcare system.

**Results:** There is not a single, effective approach to achieving payment reform. Payment reform is a strategic approach to restructuring the organization of the healthcare system in order to improve patient care. Successfully implementing payment reform results in significant cultural, social, and financial transformations. The stakeholders have agreed on the assertion that implementing value reimbursement systems and business models might enhance efficiency and create social impact by mitigating healthcare disparity and enhancing population health. Nevertheless, effectively executing these novel tactics has financial and societal hazards that need improved oversight from

all parties involved. Utilizing state-of-the-art technology is crucial for effectively addressing these risks. However, it is also important to have strong leadership that prioritizes the goal of enhancing population health and, as a result, increasing value.

**Conclusion:** Payment reform is used as a means to restructure the organization of healthcare delivery to patients, with the aim of achieving social and financial changes in the healthcare system.

**Key Words:** Value-based reimbursement – Value-based health care – Review – Payment reform – Health policy.

## Introduction

**THE** fee-for-service model is the prevailing payment system in healthcare globally. Under this model, clinicians are reimbursed for the patient care they give, regardless of any outcome-related measures. This approach may lead to a lack of fairness and responsibility in the treatment process. The absence of factoring in results when determining payments has spurred the development of revamped methods for healthcare reimbursement, such as the notion of value, which entails achieving improved outcomes without escalating expenses [1]. Value-based reimbursement strategies are pioneering solutions that healthcare policymakers can contemplate in order to establish a more enduring healthcare system. The dissemination of these strategies prompted the establishment of the Value-Based Healthcare Implementation Special Task Force by the ISPOR in 2022.

Indications of the effective execution of value-based reimbursement schemes are beginning to surface. Success of implemented models is determined by analyzing specific details of patients' consumption patterns, taking into account their clinical condition and the risk balance among all

---

**Correspondence to:** Moteb Roshaid Al-Shamari  
A-Mail: Alshamarimo@Ngha.Med.Sa

parties involved. The utilization of precise patient-level cost and outcome data varies across different payment strategies, ranging from fee-for-service to more recent bundled-payment approaches focused on value. This variation leads to different risk agreements among stakeholders. From the standpoint of the care system, there is no universally accepted payment model that is considered the best method for compensating healthcare professionals for the services they give to patients [2].

In order to address the healthcare crisis and enhance patient-focused health outcomes, organizations must prioritize patients and ensure that the system is reimbursed based on patient outcomes. This requires using new reimbursement models that take into account the financial and social risks faced by all stakeholders. Prof. Michael Porter has identified risk balancing as a key factor in the potential of strategies like bundled payments to alleviate the healthcare crisis. By basing reimbursement on patients' perceptions and outcomes that are important to them, all parties involved, including pharmaceutical companies, providers, insurers, and government payers, are incentivized both financially and socially to achieve better outcomes. This approach acts as a supplementary and crucial motivation for stakeholders to accomplish the main objective of a healthcare company: to create a lasting social impact by improving population health and equity, while also maintaining financial responsibility [1,3].

In order to achieve success, value-based reimbursement schemes need to include the variability among patients at an individual level and the classification of risk. This has been recently demonstrated in a systematic review that assessed the effect of innovative reimbursement strategies on the healthcare system. The review found that while value-based reimbursement agreements are acknowledged as methods to decrease inefficiencies in healthcare, in practice, these agreements have actually resulted in an overall increase in Medicare spending after the distribution of financial bonuses. To better manage the financial risk associated with value-based reimbursement agreements, it is crucial to take into account precise patient-level cost information when adjusting fees and bonuses prior to implementing new payment strategies [2,4,5].

Implementing advanced technologies is necessary to achieve outcome and cost measurement capabilities at the individual case level, while also ensuring compliance and agility. These cutting-edge technologies have the ability to gather and analyze data for any clinical condition or care cycle, enabling the identification of the most effective reim-

bursement strategies. In order to determine the most suitable reimbursement model for each clinical condition, it is necessary to measure resource consumption more effectively at the individual case level. Utilizing technologies that utilize the gold-standard cost accounting method, such as time-driven activity-based costing, can be advantageous in value-based healthcare studies [6,7,8]. Previous research has shown that time-driven activity-based costing is effective in measuring the variability in resource consumption at the individual or clinical condition level [9,10]. Therefore, this approach can provide accurate information to enhance value-based reimbursement strategies.

Comprehensive comprehension of value-based reimbursement agreements, which includes precise cost and outcome data, and regards these agreements as a means of managing risk, is crucial for the purpose of guaranteeing that the healthcare system produces social benefits while maintaining financial viability.

#### *Aim of work:*

A comprehensive knowledge of value-based reimbursement agreements, which considers such agreements to be a tool for risk management, is essential for the goal of ensuring that the healthcare system delivers social effects while also guaranteeing that it is financially sustainable. The purpose of this essay is to provide a critical examination of the influence that value-based payment schemes have had on the healthcare system from both a social and a financial point of view.

### **Methods**

PubMed, PsycINFO, the Cochrane Library, JSTOR, EconLit, CINAHL, PsycArticles, and Trip Database were the databases that were searched during the search that took place in July of 2021.

For the purpose of identifying studies on the facilitators and barriers of VBP models, the search terms were constructed utilizing three key components: (a) Keywords related to VBHC (for example, P4P or bundled); (b) Keywords related to provider payment (for example, incentive or model); and (c) Keywords related to transmural and NOC (for example, multiple providers or intramural). During the process of determining the precise search phrase, both the synonyms of those keywords and the variations in spelling were taken into consideration. Furthermore, MeSH phrases were included wherever they were relevant in order to guarantee completeness. In addition, the search was restricted to works that were authored in English and were published after January 2005 respectively. We chose this be-

ginning point because, according to searches conducted in PubMed, VBHC seems to have acquired a lot of momentum around the year 2005 [1]. The search was carried out using the keywords that were contained in the title and/or abstract of the research paper.

*Analysis of historical factors and risk mitigation in healthcare reimbursement strategies:*

Between 1980 and 2010, various reimbursement strategies based on value were examined, experimented with, and put into action. One such strategy was the Diagnosis Related Groups (DRG), which considered the complexity of patients and the variety of cases when determining reimbursement. However, these strategies did not take into consideration the outcomes or the quality of services provided. This approach continues to be a system that promotes waste based on the amount of services provided. However, in recent years, value-based reimbursement strategies have been introduced as alternative methods to align the interests of the payer, provider, and patient. These strategies provide incentives to providers who achieve improved patient outcomes and experiences without increasing expenses. Two primary methodologies and their modifications arose: capitation, first devised as a payment mechanism based on the population, and bundled payments [11,12].

The capitation payment model offers a predetermined and unchanging sum of money to healthcare providers who offer comprehensive care services to a specific group of people within a set timeframe. This payment is adjusted based on the mix of patients and the quality of care provided. By setting a fixed price per patient for the entire care cycle, providers are exposed to the possibility of financial loss, but they are also incentivized to enhance efficiency and minimize wastage. The healthcare provider bears the financial risk in this model. Providers are motivated to minimize or withhold essential services because of the significant financial risk involved. Capitation has often faced criticism for its negative incentive to limit treatment, while simultaneously, the concept of bundled payments began to gain traction [13,14].

Bundled payment is a method where providers are compensated for the entire cycle of care for a specific clinical condition. They may also receive a bonus based on the outcomes achieved. A bundle includes all the services provided from diagnosis to discharge, including procedures, medications, exams, and sometimes post-acute care. The goal of the bundled payment model is to prioritize service quality, reduce costs, and incentivize all stakehold-

ers to improve patient care, particularly in models that offer a bonus [1]. This bonus is typically paid at a professional level and is expected to be sustainable due to the cost savings resulting from successful treatments. For instance, if the patient's hospital stay is reduced in arthroplasty surgery, clinicians can receive a predetermined bonus. This model shares the risk among payers, providers, and clinicians, encouraging them to compete and achieve better outcomes from clinical teams and centers. Due to these qualities, this approach is considered the most effective reimbursement strategy in value-based healthcare [15-18].

BPCI was first used on a nationwide scale as a pioneering way of reimbursement. After a decade after its first implementation, published data has shown the significant effects of this program in terms of waste reduction and addressing inequality [19]. Several studies have shown that total joint arthroplasty surgeries can lead to cost savings and improved outcomes. These surgeries have been found to reduce hospital length of stay, hospital readmission rates, and post-acute care. A recent systematic review found that total joint arthroplasty surgeries achieved the most significant cost savings while maintaining or improving clinical outcomes in the context of BPCI clinical episodes. However, bundled agreements did not have a significant impact on Medicare payments, emergency department use, length of stay, and hospital readmission for medical conditions such as congestive heart failure, pneumonia, chronic obstructive pulmonary disease, and acute myocardial infarction. These results indicate the need of developing novel approaches and collaborations, as well as providing extra incentives, that start at the initiation of care cycles in primary care [20,21].

Primary care has emerged as a crucial element in the nation's initiatives for compensation based on value. The Comprehensive Primary Care Initiative, initiated by the Centers for Medicare & Medicaid Services, introduced voluntary performance-based and risk-sharing payment agreements for primary care services. Under this model, advanced primary care practices are compensated with a fee for the initial consultation, a monthly payment based on the population served, and a quarterly payment based on performance. This payment structure has the potential to increase revenue by 50% or decrease revenue by 10%. The performance assessment is determined by outcome metrics, including blood pressure and diabetes management, cancer screening, personalized care planning, and patient satisfaction. This program is a crucial milestone in the transformation of the healthcare system towards prioritizing value.

However, its successful implementation requires the ability to assess costs and outcomes throughout the whole treatment process for each person, as well as smart adjustments to the agreements between those who pay for healthcare and those who deliver it [22,23].

An instance of systemic and strategic alteration may be seen in the area of cardiology. In order to alleviate the high number of hospitalizations and readmissions in the United States, the American Heart Association has proposed the adoption of a value-based model that prioritizes the long-term management and prevention of heart failure. However, the main obstacles to implementing this model are the need for significant changes in organizational culture, professional conduct, and agreements among stakeholders. For instance, the fundamental concepts that form the basis of value-based agreements in heart failure situations are the pursuit of fair and comprehensive healthcare for the whole community, which encompasses ensuring access to specialist medical services. Nevertheless, the attainment of this objective is only possible if there is more collaboration between primary and specialist care, necessitating substantial modifications to the current organizational structure of the system [24].

The long-term viability of the BPCI agreements with the addition of bonus requirements is linked to crucial factors that stakeholders must handle. The initial assessments have indicated the significance of carefully considering expenses and the variability associated with how patients engage with the healthcare system in relation to the specific characteristics of each disease before establishing agreements to reduce financial and social risks to the system. In terms of its effect on fairness and the overall health of the population, although the objective of these innovative solutions to the challenge of creating social impact by enhancing value in the healthcare system appears to be clear, their successful implementation relies on a precise measurement process for outcomes and costs, which must be followed by substantial cultural and organizational changes involving the active participation of providers, payers, and patients [25].

#### Value-Based Reimbursement Strategies for Social Impact and Financial Sustainability

We propose that the key to creating a healthcare system that produces improved results and enhances the health of the people without raising expenses lies in creating a lasting social effect. This means boosting population health and equality while also assuring financial responsibility. The stakeholders have unanimously agreed that implementing value

reimbursement systems and business models has the potential to enhance efficiency and provide a positive social effect by addressing healthcare inequities and enhancing population health. Nevertheless, effectively executing these novel tactics requires improved management of both financial and social risks at the planning stage. Failure of value-based reimbursement models often occurs when healthcare executives fail to address the organizational and financial challenges associated with aligning incentives with patient outcomes and having a positive societal effect. Utilizing empirical cost and outcome data to address these risks and inform choices is crucial for establishing transparency and confidence, as well as fostering stakeholder participation, with the ultimate goal of enhancing value in the healthcare sector.

#### *Conclusion:*

There is no singularly effective approach to achieving payment reform. Payment reform is used as a tactic to restructure the organization of the healthcare system in order to provide patient care. Its effective execution results in cultural, social, and financial transformations within the healthcare system. The objective of this process is to create and effectively execute a system that is based on evidence and fair to all patients. The aim is to guarantee financial stability by creating social benefits and bringing together all parties involved to enhance the overall health of the population and, as a result, increase value.

#### **References**

- 1- PORTER M.E. and KAPLAN R.S.: How to pay for health care. *Harv Bus Rev.*, 94 (7-8): 88-98, 2016.
- 2- AGARWAL R., LIAO J.M., GUPTA A. and NAVATHE A.S.: The impact of bundled payment on health care spending, utilization, and quality: A systematic review: A systematic review of the impact on spending, utilization, and quality outcomes from three Centers for Medicare and Medicaid Services bundled payment programs. *Health Aff (Millwood)*, 39 (1): 50-57, 2020. doi:10.1377/hlthaff.2019.00784.
- 3- LARSSON S., CLAWSON J. and KELLAR J.: *The Patient Priority: Solve Health Care's Value Crisis by Measuring and Delivering Outcomes That Matter to Patients*. McGraw Hill Professional, 2022.
- 4- SHASHIKUMAR S.A., GULSEREN B., BERLIN N.L., HOLLINGSWORTH J.M., MADDOX K.E.J. and RYAN A.M.: Association of hospital participation in bundled payments for care improvement advanced with Medicare spending and hospital incentive payments. *JAMA*, 328 (16): 1616-1623, 2022. doi:10.1001/jama.2022.18529.
- 5- LIAO J.M. and NAVATHE A.S.: The path ahead for bundled payments. *JAMA*, 328 (16): 1592-1594, 2022.

- doi:10.1001/jama.2022.18191 [PubMed] [Google Scholar].
- 6- TSAI M.H., PORTER J.C. and ADAMS D.C.: The denominator in value-based health care. *Anesth. Analg.*, 127 (1): 317, 2018. doi:10.1213/ane.0000000000003401.
  - 7- DA SILVA ETGES A.P.B., NABI J., GEUBELLE A., MARTINS S.O. and POLANCZYK C.A.: Analytical solutions to support value-based health care: The ischemic stroke care pathway case. *NEJM Catal Innov. Care Deliv.*, 3 (1), 2022.
  - 8- KAPLAN R.S.: Improving value with TDABC. *Healthc Financ Manage*, 68 (6): 76-84, 2014.
  - 9- KEEL G., SAVAGE C., RAFIQ M. and MAZZOCATO P.: Time-driven activity-based costing in health care: A systematic review of the literature. *Health Policy*, 121 (7): 755-763, 2017. doi:10.1016/j.healthpol.2017.04.013.
  - 10- DA SILVA ETGES A.P.B., RUSCHEL K.B., POLANCZYK C.A. and URMAN R.D.: Advances in value-based healthcare by the application of time-driven activity-based costing for inpatient management: A systematic review. *Value Health*, 23 (6): 812-823, 2020. doi:10.1016/j.jval.2020.02.004.
  - 11- BAROUNI M., AHMADIAN L., ANARI H.S. and MOHSENBEIGI E.: Challenges and adverse outcomes of implementing reimbursement mechanisms based on the Diagnosis-Related Group classification system: A systematic review. *Sultan Qaboos Univ Med J.*, 20 (3): e260, 2020. doi:10.18295/squmj.2020.20.03.004.
  - 12- PORTER M.E., LEE T.H.: The strategy that will fix health care. *Harv Bus Rev.*, 91 (12), 2013.
  - 13- JAMES B.C. and POULSEN G.P.: The case for capitation. *Harv Bus Rev.*, 94 (7-8): 102-111, 2016.
  - 14- BERWICK D.M.: Payment by capitation and the quality of care. *N. Engl. J. Med.*, 335 (16): 1227-1231, 1996. doi:10.1056/nejm199610173351611.
  - 15- HAZELWOOD A. and COOK E.D.: Improving quality of health care through pay-for-performance programs. *Health Care Manag.*, 27 (2): 104-112, 2008. doi:10.1097/01.hcm.0000285037.12043.a3.
  - 16- FEELEY T.W. and MOHTA N.S.: Transitioning payment models: Fee-for-service to value-based care. *N. Engl. J. Med. Catal*. Published online, November 2018.
  - 17- HIRSCH J.A., LESLIE-MAZWI T.M., BARR R.M., et al.: The bundled payments for care improvement initiative. *J. NeuroIntervent Surg.*, 8 (5): 547-548, 2016. doi:10.1136/neurintsurg-2015-011746.
  - 18- PORTER M.E. and LEE T.H.: Why strategy matters now. *N. Engl. J. Med.*, 372 (18): 1681-1684, 2015. doi:10.1056/nejmp1502419
  - 19- BASEMAN S., BOCCUTI C., MOON M., GRIFFIN S. and DUTTA T.: Payment and delivery system reform in Medicare. Kaiser Family Foundation. Published 2016. <https://www.kff.org/medicare/report/payment-and-delivery-system-reform-in-medicare/>
  - 20- SIDDIQI A., WHITE P.B., MISTRY J.B., et al.: Effect of bundled payments and health care reform as alternative payment models in total joint arthroplasty: A clinical review. *J. Arthroplasty*, 32 (8): 2590-2597, 2017. doi:10.1016/j.arth.2017.03.027.
  - 21- JOYNT MADDUX K.E., ORAV E.J., ZHENG J. and EPSTEIN A.M.: Evaluation of Medicare's bundled payments initiative for medical conditions. *N. Engl. J. Med.*, 379 (3): 260-269, 2018. doi:10.1056/nejmsa1801569.
  - 22- US Department of Health and Human Services. HHS to deliver value-based transformation in primary care. Accessed October 9, 2022. <https://innovation.cms.gov/innovation-models/comprehensive-primary-care-initiative>.
  - 23- BLISS H.E., GEORGE P. and ADASHI E.Y.: The primary cares initiative: Value-based redesign of primary care. *Am. J. Med.*, 133 (5): 528-529, 2020. doi:10.1016/j.amjmed.2019.12.010.
  - 24- JOYNT MADDUX K., BLESER W.K., CROOK H.L., et al.: Advancing value-based models for heart failure: A call to action from the value in healthcare initiative's value-based models learning collaborative. *Circ Cardiovasc Qual Outcomes*, 13 (5): e006483, 2020. doi:10.1161/circoutcomes.120.006483.
  - 25- MACLEAN C., TITMUSS M., LEE J., RUSSELL L. and PADGETT D.: The clinical, operational, and financial components of a successful bundled payment program for lower extremity total joint replacement. *NEJM Catal Innov Care Deliv.*, 2 (10), 2021. doi:10.1056/cat.21.0240.

## تأثير نماذج تعويض الرعاية الصحية القائمة على القيمة على المنظمات الصحية: مراجعة

الحلقة: في الجهد المستمر لإنشاء نظام رعاية صحية يمكن الاحتفاظ به على مر الزمان، تم استكشاف تقنيات تعويض القيمة. يتم تحديد نجاح النماذج المطبقة من خلال تحليل بيانات دقيقة لملف استهلاك المرضى بالنسبة لحالتهم السريرية وتوازن المخاطر بين جميع أصحاب المصلحة. يختلف استخدام بيانات تكلفة المريض والنتائج على مستوى المريض عبر أساليب الدفع المختلفة، بما في ذلك نماذج الدفع عن الخدمة ونماذج الدفع المجمع القائمة على القيمة، مما يؤدي إلى إنشاء اتفاقيات مختلفة للمخاطر بين أصحاب المصلحة.

هدف العمل: من أجل ضمان استدامة النظام الصحي وتحقيق عواقب اجتماعية، من الضروري فهم شامل لاتفاقيات تعويض القيمة والاعتراف بها كوسيلة لإدارة المخاطر. يوفر هذا المقال نظرة مفصلة على كيفية تأثير أنظمة تعويض القيمة على النظام الصحي، بما في ذلك الجوانب الاجتماعية والمالية.

الطرق: استخدمت الدراسة فحصاً صارماً للأدب الحالي حول تعويض القيمة لتحديد التأثيرات الخاصة للتقنيات المختلفة على الأنظمة الصحية. بعد استعراض الأدب، تم تقديم تعريف مفاهيمي لاتفاقيات تعويض القيمة. تعتبر هذه الاتفاقيات وسيلة لتحقيق فوائد اجتماعية ومالية على النظام الصحي.

النتائج: ليس هناك نهج فعال واحد لتحقيق إصلاح الدفع. إصلاح الدفع هو نهج استراتيجي لإعادة هيكلة تنظيم النظام الصحي من أجل تحسين رعاية المرضى. يؤدي تنفيذ إصلاح الدفع بنجاح إلى تحولات ثقافية واجتماعية ومالية كبيرة. وافق أصحاب المصلحة على التأكيد على أن تنفيذ أنظمة تعويض القيمة ونماذج الأعمال يمكن أن يعزز الكفاءة ويخلق تأثير اجتماعي من خلال التخفيف من الفجوة الصحية وتعزيز صحة السكان. ومع ذلك، تحمل هذه التكتيكات الجديدة مخاطر مالية واجتماعية تتطلب إشرافاً محسناً من جميع الأطراف المعنية. استخدام التكنولوجيا المتطورة ضروري لمعالجة هذه المخاطر بفعالية. ومع ذلك، من المهم أيضاً وجود قيادة قوية تعطي الأولوية لهدف تعزيز صحة السكان وبالتالي زيادة القيمة.

الاستنتاج: يُستخدم إصلاح الدفع كوسيلة لإعادة هيكلة تنظيم تقديم الرعاية الصحية للمرضى، بهدف تحقيق تغييرات اجتماعية ومالية في النظام الصحي.