JOURNAL OF SOCIAL SCIENCE
Printed ISSN: 2720-9938
Electronic ISSN: 2721-5202
jsss.co.id

KEY SUCCESS IN THE TRANSFORMATION FROM VOLUME-BASED TO VALUE-BASED HEALTHCARE: A SCOPING REVIEW

Edy Gunawan[1]*, Mardiati Nadjib[2], Syarifah Soraya[1]
Hospital Administration Master Program, Faculty of Public Health, Universitas Indonesia, Jakarta, Indonesia[1]
Department of Health Administration and Policy, Faculty of Public Health, Universitas Indonesia, Jakarta, Indonesia[2]
Email: edygunawan06@gmail.com*

ARTICLE INFO

Date received : August 16, 2022
Revision date : September 05, 2022
Date received : September 19, 2022

Keywords:
Value-based healthcare; transformation; hospital; key success

ABSTRACT

This research aims to describe describe the factors that affect the shift from the conventional volume-based healthcare to value-based healthcare used a scoping review methodology. Data of research based on article search was conducted using online Scopus and Embase databases, resulting in 800 articles describing value-based healthcare. Duplication removal excluded 76 articles, screening excluded 295 articles, eligibility assessment excluded 76 articles, and the remaining 30 articles were included. The results of study show that VBHC was proposed as a shift in healthcare management entailing six reinforcing elements, but most hospitals have implemented only one VBHC element. The most common implemented elements are "the measurement of outcome and cost" and "the reorganization to integrated practice units." The key success for the implementation of these elements are: (1) strong data collection to measure clinical outcomes that matter to patients, (2) clear governance of this data management, and (3) strong support from the high leadership to encourage multidisciplinary teamwork. Thus, the true VBHC system can only be reached when all the six elements are achieved. However, no single study describes a success in implementing all elements of VBHC. Hospital leaders need to be cautious when interpreting VBHC as not to think that the VBHC can be reached by cherry-picking only selected elements of VBHC.

INTRODUCTION

The global projected medical spending in 2021 was 8.1%, well above the global inflation rate of 4.35% in the same year (O'Neill, 2022; Watson, 2020). The overuse of care due to over-recommendations of services or overprescribing by the medical practitioners continues to be the most significant factor contributing to the increase in medical expenses (Watson, 2020). Fee-for-service (FFS), currently the most common payment method for medical services in the world, is defined as "the fixed payment for each unit of service without regard to outcomes" (Luca & Paul,

How To Cite: Gunawan, E., Nadjib, M., & Soraya, S. (2022). Key Success in The Transformation from Volume-Based to Value-Based Healthcare: A Scoping Review. *Journal of Social Science. 3*(5). https://doi.org/10.46799/jss.v3i5.414
E-Issn: 2721-5202
Published By: Ridwan Institute

2019; Rice, 2021). It contributes to increased services utilization, volume, and cost without clearly improving the quality of care (Luca & Paul, 2019).

Efforts have been made to shift from volume-driven to value-driven care since the 1990s (Alsever et al., 1995; Beveridge, 1997a, 1997b) It revolutionized in 2006 when Michael Porter and Elizabeth Teisberg introduced the concept of value-based healthcare (VBHC). At its fundamental goal, VBHC aims to improve value for patients. Value is further described as the health outcomes achieved that are important to the patient relative to the cost of achieving those outcomes. Value enhancement entails improving one or more outcomes without increasing costs or reducing costs without compromising outcomes, or both (Bernstein et al., 2022; Porter & Lee, 2013; Porter & Teisberg, 2006; Teisberg et al., 2020).

Porter described six major elements that are necessary for a truly value-based system: (1) reorganize care around patient conditions, into Integrated Practice Units (IPUs), (2) measure outcomes and costs for every patient, (3) move to bundled payments for care cycles, (4) integrate multi-site care delivery systems, (5) expand excellent provider reach across geography and (6) build an enabling information technology platform (Bernstein et al., 2022; Porter & Lee, 2013; Porter & Teisberg, 2006; Teisberg et al., 2020).

Despite the increasing number of peer-reviewed publications addressing the value-based healthcare, a systematic approach for implementing this concept is minimal (Bernstein et al., 2022; Porter & Lee, 2013; Teisberg et al., 2020; Zipfel et al., 2019). It is crucial to understand the lessons learned from previous implementation efforts, and when used accordingly, this can drive towards a more successful transformation to VBHC.

METHOD

Since VBHC is an emerging topic and the previous studies are heterogenous, we conducted a scoping review to review the implementation of VBHC and the factors affecting it. We followed the Joanna Briggs Institute framework for population, concept and context, the framework of Arksey and O'Malley for scoping review methodology and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Arksey & O'Malley, 2005; Peters et al., 2015; Tricco et al., 2018).

1. Identifying the research question

This research uses the population, concept and context (PCC) framework recommended by the Joanna Briggs Institute for Scoping Reviews (Peters et al., 2015). It aims to address the following research questions:

a. Which element of VBHC is the most commonly implemented?
b. What are the key success affecting the transformation to VBHC?

Table 1
The PCC framework

Population
Hospitals
Concept
Value-based healthcare
Value-based care
VBHC
Context
International
Between 2006-2022

2. Identifying relevant studies

Two databases were used: Scopus and Embase. The articles included were from 2006, the year when Porter first introduced VBHC, to 2022. The multiple keywords used were shown below.

Table 2
Search Strategy

No	Keywords	Search Strategy
1	Value-based healthcare	"value-based healthcare" OR "value based healthcare" OR "value-based health care" OR "value based health care" OR "value-based care" OR "value based care" OR "vbhc"
2	Key success	"key success*"
3	Hospital	"hospital*" OR "healthcare" OR "health care" OR "health facilit*"

To include relevant studies, we included English, full-text, empirical articles which described the implementation of VBHC to patients in a hospital setting and explicitly cited Porter's concept on VBHC. Articles describing other concepts of value-based healthcare were not included.

3. Study selection

The articles were exported to Mendeley, where duplicates were removed afterward. Two rounds of eligibility screening were conducted. During the first round, two reviewers screened for titles and abstracts independently. After every 200 articles, the two reviewers discussed, and when there were disagreements, the articles in question were raised to the third reviewer. During the second round, full-text screening was conducted independently by two reviewers.

4. Charting the data

The included full-text articles were imported and summarized using these extraction fields: author(s), year, title, country, VBHC element, affecting factors. The data were then regrouped to answer the research questions. Data in the field "VBHC element" were sorted to indicate which of the six elements of VBHC was most commonly implemented. Data in the field "affecting factors" were classified and used to describe the factors affecting a successful transformation to VBHC.

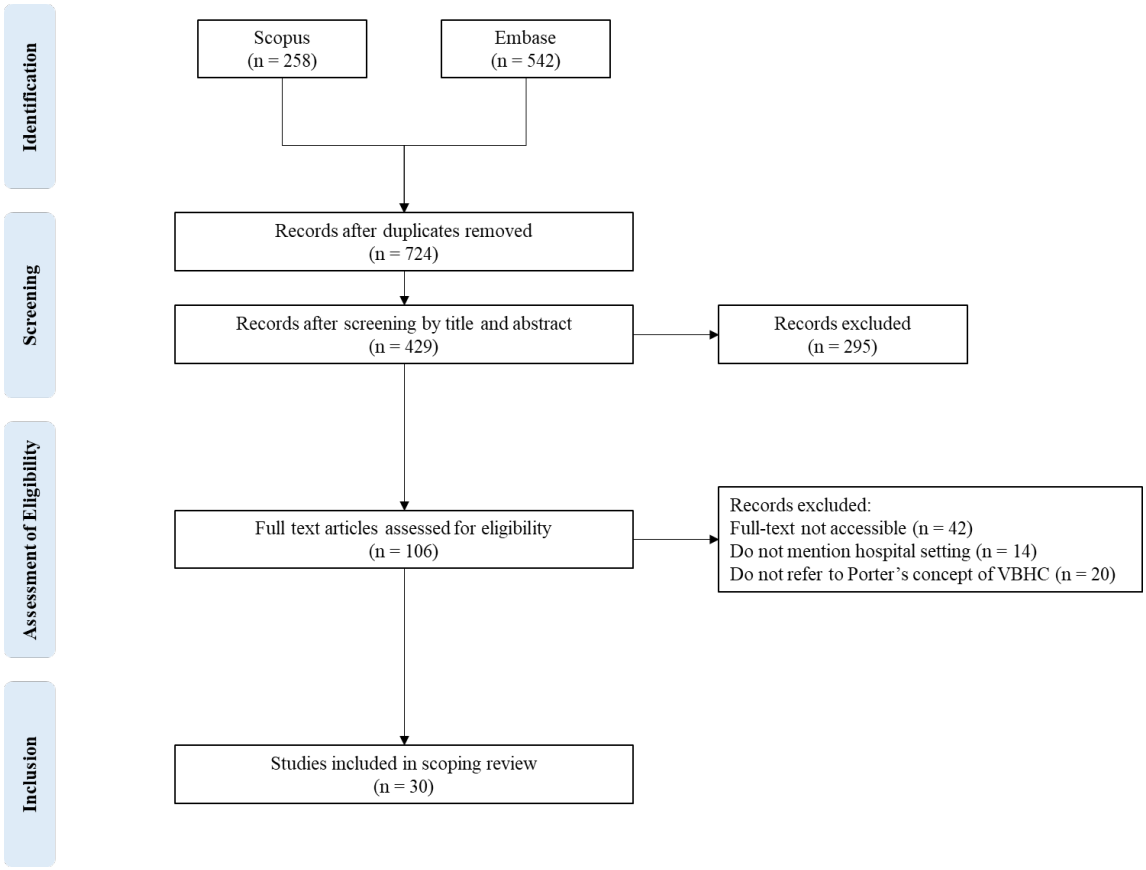

Figure 1. PRISMA flow diagram for the scoping review process

RESULTS AND DISCUSSION

The initial identification phase resulted in 800 articles (258 from Scopus and 542 from Embase). These articles were then deduplicated, resulting in 724 articles. After screening by title and abstract, 295 articles were irrelevant and excluded, leaving 429 articles. From 429 articles, 42 articles were not fully accessible, 14 articles did not mention any implementation in the hospital setting, and 20 articles did not refer to Porter's concept of VBHC, all of which were excluded. Subsequently, 30 full-text articles were selected for inclusion in this scoping review.

The articles included in this study came from various countries. As many as 9 articles (30%) were from the United States, 7 articles (23%) were from the Netherlands, 3 articles (10%) were from Sweden, 2 articles (7%) were from Korea, and 1 article (3%) each from Poland, Australia, UK, Sweden and Brazil, Spain, Germany, Sierra Leone (West Africa), Italy, and multiple European countries. A summary of these articles is shown in Figure 2.

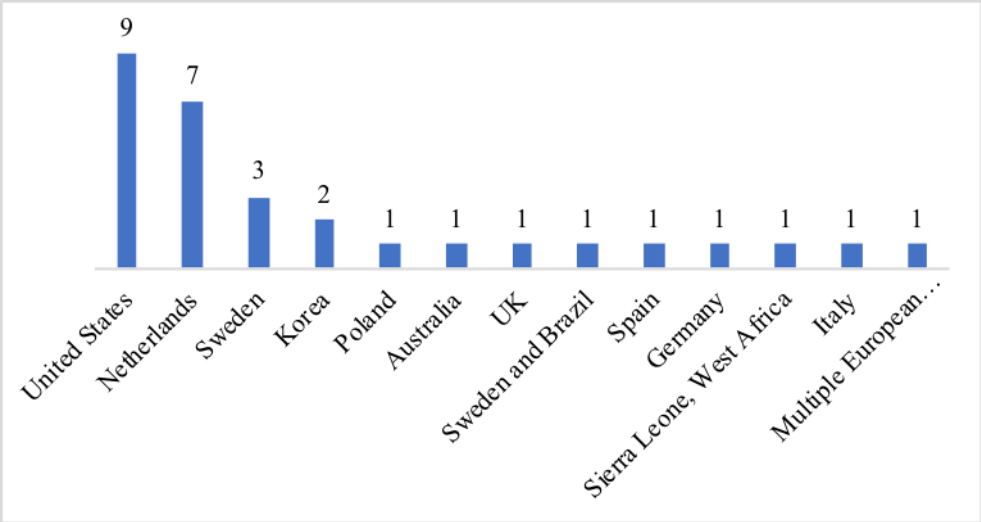

Figure 2. Distribution of articles by count

Table 3
Summary of articles relevant to VBHC implementation

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
1	Florence A.C.J. Heijsters et al	2022	A pragmatic approach for implementation of value-based healthcare in Amsterdam UMC, the Netherlands	Netherlands	Reorganize into IPU	Organisational readiness for change among healthcare professionals, including cultural change. From the start, the VBHC program in Amsterdam UMC has been directed by a steering committee chaired by the chief medical officer. The steering committee has determined the program-wide goals, monitored progress and selected new teams who wanted to start with VBHC. Value teams executed the VBHC approach.
2	Ewelina Nojszewska and Agata Sielka	2022	Macroeconomic and Social Indicators to Launch the PM-Based VBHC Model in the Healthcare System in Poland	Poland	Reorganize into IPU	The very operation of hospitals is a resultant of all determinants, i.e., social behaviour, the state of the economy, public finances and the healthcare system. it is so important to create KPIs that provide knowledge about all of the determinants of achievements/failures in health care.
3	Dane Lansdaal et al	2021	Lessons learned on the experienced facilitators and barriers of implementing a tailored VBHC model in a Dutch university hospital from a perspective	Netherlands	Reorganize into IPU; measure outcome and cost	Structured implementation methodology: well-led strong team, shaping patient involvement, alignment with other departments, and attention to digitisation

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
			of physicians and nurses			
4	Claudia Rutherford et al	2019	Implementing Patient-Reported Outcome Measures into Clinical Practice Across NSW: Mixed Methods Evaluation of the First Year	Australia	Measure outcome and cost	Issues with Information and Communication Technologies (ICT), especially lack of integration with existing data systems, consistently impacted on successful program implementation. ICT issues led to decreased clinician (and sometimes patient) engagement, as potential benefits of PROMs were not considered substantive to justify the additional burden (e.g. time) placed on clinicians (and patients), particularly in fast-paced, business-oriented primary care settings who often see many patients in short periods.
5	Dennis van Veghel et al	2020	Improving clinical outcomes and patient satisfaction among patients with coronary artery disease: an example of enhancing regional integration between a cardiac centre and a referring hospital	Netherlands	Measure outcome and cost; integrate multi-site care delivery system; expand reach across geography	Intensive community based care requires a highly complex organization, which is reflected by the diversity of the clusters. The emphasis on cooperation with other institutes is significant, and this should ideally be characterized as a chain of care. This means that single services provided by separate institutes need to be strongly linked and that interorganisational and interdisciplinary service is essential for an intensive community-based care. The care chain includes care at both locations and the interaction between both hospitals.
6	Dennis van Veghel	2020	Organization of outcome-based quality improvement in Dutch heart centres	Netherlands	Measure outcome and cost	(i) data infrastructure, (ii) a systematic approach for the identification of improvement potential and the selection and implementation of improvement initiatives, (iii) governance in which roles and responsibilities of physicians regarding outcome improvement are formalized, and (iv) implementation of outcomes within hospital strategy, policy documents, and the planning and control cycle.
7	Christian Colldén et al	2018	Value-based healthcare translated: a complementary view of implementation	Sweden	Measure outcome and cost	It can be more fruitful to view implementation as a dynamic process rather than seeing it as a matter of planning and execution. translation theory perspective accepts that the local application of an MI (management innovations) may differ from its original form and, rather, encourages managers to seize the opportunity to contextualize the MI to fit their own organizations.
8	Nicholas Schraut et al	2021	High variability in patient	United States	Measure outcome and cost	we do not appear to be converging toward a consensus measure or set of measures that capture meaningful

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
			reported outcome utilization following hip fracture: a potential barrier to value-based care			outcomes beyond mortality. A real difference between specialties in the perception of what outcomes are felt to be relevant.
9	Andrew St John et al	2021	Implementation of medical tests in a Value-Based healthcare environment: A framework for delivering value	UK	Measure outcome and cost	The outcome measures employed in the implementation protocol should be based on Donabedian's quality measures of outcomes, process and structure (resources), together with the balancing measures to cover unintended consequences in the care pathway. This information may be better served by the use of real-world data, where the necessary changes are informed by the value proposition, with implementation by a care pathway-based business case.
10	Marzyeh Amini et al	2021	Facilitators and barriers for implementing patient-reported outcome measures in clinical care: An academic center's initial experience	Netherlands	Measure outcome and cost	Commonly reported facilitators for implementing PROMs in routine clinical care were the presence of a coordinator, intrinsic motivation of members within a multidisciplinary disease team, and the integration of PROMs in the EHR. On the other hand, frequently reported barriers were time constraints, IT issues, and language barriers for patients with a primary language other than Dutch.
11	Pedro Ramos et al	2021	It takes two to dance the VBHC tango: A multiple case study of the adoption of value-based strategies in Sweden and Brazil	Sweden and Brazil	Measure outcome and cost; move to bundled payment	It appears difficult to strike a balanced approach from the start, and context seems to influence whether quality or cost becomes the focus. A path forward could be to find balance through conversation (instead of conflict), informed by aligning these answers with organizational business models
12	Maggie E. Horn et al	2021	Electronic health record–integrated approach for collection of patient-reported outcome measures: a retrospective evaluation	United States	Measure outcome and cost	Future steps for PROMs collection should focus on improving the robustness of PROMs response rate by updating utilities within the EHR that improve communication with patients and demonstrate how PROMs support shared decision-making with providers.

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
13	Casey J. Allen et al	2021	Developing a Value Framework: Utilizing Administrative Data to Assess an Enhanced Care Initiative	United States	Measure outcome and cost	We also emphasize the current lack ofdand thus the importance of collecting and reporting better cost data, as well as longterm and patient-centric outcomes. The ability to communicate value through a standardized framework is needed to facilitate shared decision-making among all stakeholders involved in value-based health care.
14	Kelly R. Stiegel et al	2020	Value-Based Care for Nonoperative Management of Hip and Knee Osteoarthritis: Current Landscape Not Ripe for Implementation	United States	Move to bundled payment	Payment reforms have been proven to be effective at reducing costs of surgical care without compromising outcomes. Our next challenge as a community is to take these principles and apply them to nonoperative management of common chronic conditions, such as OA. Increasing value of care is aworthwhile goal, but it cannot be accomplished until our evidence-based CPGs are familiar to and followed by all health-care providers who would be providing nonoperative management for our patients. This has important implications beyond value, and it extends to providing equitable care to all patients. Regardless of where patients enter the healthcare system, receiving consistent and evidence-based care is critical.
15	Kevin Hines et al	2021	Bundled Payment Models in Spine Surgery	United States	Move to bundled payment	To optimize this payment method, stringent risk stratification, development of evidence-based pathways, and dissemination of detailed outcome-based data must be implemented. In addition, hospital systems must evaluate risk allocation as repayment models are defined to avoid financially incentivizing spinal surgeons to select for only healthy patient with low risk pathology.
16	Rahul Annabathula et al	2021	Value-based assessment of implementing a Pulmonary Embolism Response Team (PERT)	United States	Reorganize into IPU	Teamwork
17	Carolina Varela-Rodríguez et al	2022	Value-Based Healthcare Project Implementation in a Hierarchical Tertiary Hospital: Lessons Learned	Spain	Reorganize into IPU; measure outcome and cost	(1) a minimum amount of 90.000 euros was required to implement VBHC in medium to high complex medical conditions processes. (2) In the process of data appropriateness and datarecording tools adaptation for outcome measures within the local system, 6 months were spent for the first medical condition to be considered. (3) Clinical-reported outcomes measures (CROM)

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
						have to be normalized and standardized by international standards.
18	Ellen van der Vlies et al	2020	Implementation of a preoperative multidisciplinary team approach for frail colorectal cancer patients: Influence on patient selection, prehabilitation and outcome	Netherlands	Reorganize into IPU	Implementation of MDT evaluation can be used to improve the management of frail older patients with CRC, including shared decision making and tailored perioperative care. Thismay lead to favorable postoperative outcomes in frail patients despite an increased preoperative risk.
19	Y.J.L. Bodar et al	2020	Time-Driven activity-based costing identifies opportunities for process efficiency and cost optimization for robot-assisted laparoscopic pyeloplasty	United States	Measure outcome and cost	TDABC costs for RALP successfully presented opportunities for more than 20% cost reduction when compared to traditional accounting, even without any alteration in ongoing RALP care pathways at our institution.
20	David Kuklinski et al	2020	The use of digitally collected patientreported outcome measures for newly operated patients with total knee and hip replacements to improve post-treatment recovery: study protocol for a randomized controlled trial	Germany	Measure outcome and cost	The collection of PROMs on paper has been not effective and there have been low follow-up return rates and the burden of additional documentation work for hospitals.

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
21	Claudia Marotta et al	2020	Cost-Utility of Intermediate Obstetric Critical Care in a Resource-Limited Setting: A Value-Based Analysis	Sierra Leone, West Africa	Measure outcome and cost	it is known that critical care absorbs the highest quota of hospital budgets
22	Nina Zipfel	2019	The implementation of change model adds value to value-based healthcare: a qualitative study	Netherlands	Measure outcome and cost	Several success factors were identified: intrinsic versus extrinsic motivation, a multi-centre intervention compared to a single-centre intervention, the name of the intervention, speed of the implementation process, complexity, continuous feedback and output.
23	Sean P. Ryan et al	2019	Value-Based Care Has Not Resulted in Biased Patient Selection: Analysis of a Single Center's Experience in the Care for Joint Replacement Bundle	United States	Move to bundled payment	In the present study, our investments surrounding the bundle provided a reduction in LOS and improved discharge disposition; however, no difference in total hospital costs was seen.
24	Zunirah Ahmed et al	2019	Value-Based Health Care in Inflammatory Bowel Disease	United States	Measure outcome and cost	the biggest challenges to scalability is in securing the provider–payer partnership. not all health systems have adequate infrastructure or willingness to leverage health information technology, personnel to help with patient education and care coordination, and administrative support to meet the required eligibility criteria and take advantage of these payment models. This process may be complicated for practices that accommodate multiple payer types, as multiple eligibility requirements will have to be met and multiple provider–payer agreements will need to be forged.
25	Yolima Cossio-Gil et al	2021	The Roadmap for Implementing Value-Based Healthcare in European	Multiple European countries	Reorganize into IPU; measure outcome and cost; build	Access to standardized outcome data might be a key element in the transition toward VBHC. Accordingly, it could be more practical to start the process through a well-designed pilot to

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
			University Hospitals—Consensus Report and Recommendations		enabling IT platform	evaluate risks and opportunities on real-life circumstances.
26	Kerstin Nilsson et al	2017	Experiences from implementing valuebased healthcare at a Swedish University Hospital – a longitudinal interview study	Sweden	Reorganize into IPU	The implementation of VBHC was not a straight linear process; the process moved forwards and backwards, sometimes with interruptions. Healthcare organizations implementing management innovations such as VBHC therefore need to be aware of recognizing the intrinsic drive of healthcare practitioners, and to understand the complexity in healthcare itself as well as in the process of implementation.
27	Annette Erichsen Andersson et al	2015	Understanding value-based healthcare – an interview study with project team members at a Swedish university hospital	Sweden	Measure outcome and cost	The findings indicate that health professionals still seem to have a preferential right to interpret what is valuable for the patients. Patient-centred care has been studied for several decades but there is great variation when it comes to the effect on outcome measures. It is clearly essential to know how patients define value, otherwise the risk exists that care development will focus on what is easy to measure instead of what is most important and of greatest value to the patients.
28	Joon Hurh	2017	Value-based healthcare: prerequisites and suggestions for full-fledged implementation in the Republic of Korea	Korea	Move to bundled payment	First, Korea must secure the commitment and support from healthcare providers by normalizing payment rates for healthcare providers. Second, more critical pathways must be developed and disseminated. Third, it is critical to start implementing performance-based risk-share programs. Fourth, more focus on registries and coverage with evidence development is critical, and last but not least, bundled payments with proven critical pathway care are some of the prerequisites to pressure-test the readiness of the healthcare system for establishing a full-fledged VBHC system.
29	Giulia Goretti	2020	Value-Based Healthcare and Enhanced Recovery After Surgery Implementation in a High-Volume Bariatric	Italy	Reorganize into IPU; measure outcome and cost	Communication among IPU members, patients, and board management staff has been crucial during this process. Dedicated meetings were organized to share results and progress.

No	Author	Year	Title	Location	VBHC Element	Affecting Factors
			Center in Italy			
30	Dae Seog Heo et al	2022	Hospice-Palliative Medicine as a Model of Value-Based Healthcare	Korea	Move to bundled payment	Medical technologies that rely on a high level of evidence and have high social values are essential. The hospice palliative care system reflects patients' values, which are informed by social values.

Although the concept of six elements of VBHC has been around since 2006, the standard interpretation of how it should be implemented is still rarely described. Most hospitals implemented only one element of VBHC. Of the 30 articles included, most articles (24 articles) reported the implementation process of only one element of VBHC, 4 articles reported implementation of 2 elements of VBHC, and 2 articles reported implementation of 3 components.

The number of articles describing each element of VBHC is as follows: 9 articles implemented the reorganization to integrated practice units (IPU), 20 articles implemented the measurement of outcome and cost, 6 articles implemented the movement to bundled payments, 1 article implemented the integration of multi-site care delivery system, 1 article implemented the reach expansion across geography, and 1 article implemented enabling IT platform.

In reorganizing into IPU, the organizational readiness for change among healthcare professionals is crucial. The organization has to be able to provide and support teamwork environment that allows healthcare professionals from any specialty, with any typical work rhythm, to work with other healthcare professionals whose work rhythm are different. One article from the Netherlands described how the IPU was formed through a great effort from the steering committee chaired by the chief medical officer, who had determined the program-wide goals, monitored progress and selected new teams who wanted to start with VBHC. Another study mentioned that a set of Key Performance Indicators (KPI) for healthcare professionals need to be created to provide knowledge about all of the achievements/failures in health care. This way, the awareness of the importance of IPU can increase among the healthcare professionals (Annabathula et al., 2021; Cossio-Gil et al., 2022; Goretti et al., 2020; Heijsters et al., 2022; Nilsson et al., 2017; Nojszewska & Sielska, 2022; Varela-Rodríguez et al., 2021).

In measuring outcome and cost, it is of essence to measure the outcome that the patients prefer. Some studies still indicate that health professionals still seem to have a preferential right to interpret what is valuable for the patients. Patient-centred care has been studied for several decades but there is great variation when it comes to the effect on outcome measures. It is clearly essential to know how patients define value, otherwise the risk exists that care development will focus on what is easy to measure instead of what is most important and of greatest value to the patients. Some major factors affecting the implementation of measuring outcome and cost are (i) data infrastructure, (ii) a systematic approach for the identification of improvement potential and the selection and implementation of improvement initiatives, (iii) governance in which roles and responsibilities of physicians regarding outcome improvement are formalized, and (iv) implementation of outcomes within hospital strategy, policy documents, and the planning and control cycle (Ahmed et al., 2019; Allen et al., 2021; Amini et al., 2021; Bodar et al., 2020; Colldén & Hellström, 2018; Cossio-Gil et al., 2022; Goretti et al., 2020; Kuklinski et al., 2020; Lansdaal et al., 2022; Marotta et al., 2020; Nilsson et al., 2017; Ramos et al., 2021; Rutherford et al., 2021; Schraut et al., 2022; St John et al., 2021; Van Veghel et al., 2020; Varela-Rodríguez et al., 2021; Zipfel et al., 2019).

In moving to bundled payments, many current initiatives have been successfully centered on creating bundled payments for surgical care to reduce cost. The next challenge is to take these principles and apply them to nonoperative management of common chronic conditions. To optimize this, stringent risk stratification, development of evidence-based pathways, and dissemination of detailed outcome-based data must be implemented. In addition, hospital systems must evaluate risk allocation as repayment models are defined to avoid financially incentivizing doctors to select for only healthy patients with mild chronic conditions. Furthermore, moving to bundled payment may be complicated for practices that accommodate multiple payer types, as multiple eligibility requirements will have to be met and multiple provider–payer agreements will need to be forged (Heo et al., 2022; Hines et al., 2021; Hurh et al., 2017; Ryan et al., 2019; Stiegel et al., 2021).

In integrating multi-site care delivery system and expanding reach across the geography, the emphasis on cooperation with other institutes is significant, and this should ideally be characterized as a chain of care. This means that single services provided by separate institutes need to be strongly linked and that interorganisational and interdisciplinary service is essential for an intensive community-based care. The care chain includes care at both locations and the interaction between both hospitals (Van Veghel et al., 2020).

In building enabling IT platform, issues with Information and Communication Technologies (ICT), especially lack of integration with existing data systems, consistently impacted on successful program implementation. ICT issues led to decreased clinician (and sometimes patient) engagement, as potential benefits of PROMs were not considered substantive to justify the additional burden (e.g. time) placed on clinicians (and patients), particularly in fast-paced, business-oriented primary care settings who often see many patients in short periods. Furthermore, the IT platform should be able to provide a robust data warehouse where all the standardized outcome and cost data are integrated into the electronic medical record to give better visibility to healthcare professionals treating the patients and all other relevant stakeholders (Cossio-Gil et al., 2022).

DISCUSSIONS

Initially, Porter described the idea of VBHC to increase the value of health care delivery. This article reviewed the academic literature on the perceived concept of value elements from the hospital leaders perspective, and the key success when VBHC is implemented. The present study produces three main findings, which are discussed below.

First, no single study seems to truly succeed in implementing the concept how Porter has intended it . Our review identified differences in perceived concept of VBHC. Some authors conceptualized the overall concept of VBHC, some others only defined selected elements of VBHC. VBHC is interpreted differently across hospitals and heavily depends on the decisions from local hospital leaders.

Second, as a result of variable conceptualization of VBHC, this study found that hospitals do not approach all elements as integral parts of the VBHC. There are only two most commonly implemented elements: "measurement of outcome and cost" and "the reorganization to integrated practice units." These findings suggest that hospital leaders only pick selected element which best suits them, which in turn might cause fragmentation of the VBHC. When taken as a fragmented element, this could lead to a "false value." For example, pursuing cost reduction without regards to outcome will limit the ability to reach effective care.

Third, the outcome measures that Porter initially described stressed the importance of patient-centric measurement. This includes three tiers of patient outcomes: (a) the attained health status, (b) care-related outcomes, and (c) the sustainability of patient's health. Although

many articles describe the implementation of the clinical outcome measurement, only a few measure this three-tier outcome elements. Therefore, it is relatively premature to conclude that the value is increased without measuring the comprehensive three-tier clinical outcomes.

CONCLUSION

The true VBHC system can only be reached when all the six elements are achieved. Although the journey to reach the true VBHC still seems so far, many efforts have been done in different parts of the world to increase the value of health care delivery. Some efforts are successful, some are not, but the first step in the right direction has been taken.

The implementation of VBHC was not a straight linear process; the process moved forwards and backwards, sometimes with interruptions. Healthcare organizations implementing VBHC therefore need to be aware of recognizing some key success in the implementation of VBHC: (1) support from the organization's leadership to provide cultural change that supports multidisciplinary teamwork, (2) set of KPI that provides knowledge of about all of the achievements/failures in health care, (3) outcome measurement that is centered on patient's preference, (4) solid hospital-payer partnership to support bundled payment, (5) high connectivity among hospitals in the same region to foster value-based care, and (6) strong data infrastructure for monitoring and evaluation.

REFERENCES

Ahmed, Z., Sarvepalli, S., Garber, A., Regueiro, M., & Rizk, M. K. (2019). Value-based health care in inflammatory bowel disease. *Inflammatory Bowel Diseases*, *25*(6), 958–968. Google Scholar

Allen, C. J., Eska, J. S., Thaker, N. G., Feeley, T. W., Kaplan, R. S., Huey, R. W., Tzeng, C.-W. D., Lee, J. E., Frank, S. J., & Aloia, T. A. (2021). Developing a value framework: utilizing administrative data to assess an enhanced care initiative. *Journal of Surgical Research*, *262*, 115–120. Scopus

Alsever, R. N., Ritchey, T., & Lima, N. P. (1995). Developing a hospital report card to demonstrate value in healthcare. *Journal for Healthcare Quality*, *17*(1), 19–28. Google Scholar

Amini, M., Oemrawsingh, A., Verweij, L. M., Lingsma, H. F., Hazelzet, J. A., Eijkenaar, F., & van Leeuwen, N. (2021). Facilitators and barriers for implementing patient-reported outcome measures in clinical care: An academic center's initial experience. *Health Policy*, *125*(9), 1247–1255. Scopus

Annabathula, R., Dugan, A., Bhalla, V., Davis, G. A., Smyth, S. S., & Gupta, V. A. (2021). Value-based assessment of implementing a Pulmonary Embolism Response Team (PERT). *Journal of Thrombosis and Thrombolysis*, *51*(1), 217–225. Google Scholar

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, *8*(1), 19–32. Google Scholar

Bernstein, D. N., Calfee, R. P., Hammert, W. C., Rozental, T. D., Witkowski, M. L., & Porter, M. E. (2022). Value-Based Health Care in Hand Surgery: Where Are We & Where Do We Go From Here? *The Journal of Hand Surgery*. Scopus

Beveridge, R. N. (1997a). Creating value-focused healthcare delivery systems: Part one. *The Journal of Oncology Management: The Official Journal of the American College of Oncology*

Administrators, *6*(4), 19–24.

Beveridge, R. N. (1997b). Creating value-focused healthcare delivery systems: Part three--Core competencies. *The Journal of Oncology Management: The Official Journal of the American College of Oncology Administrators*, *6*(6), 16–23. Google Scholar

Bodar, Y. J. L., Srinivasan, A. K., Shah, A. S., Kawal, T., & Shukla, A. R. (2020). Time-Driven activity-based costing identifies opportunities for process efficiency and cost optimization for robot-assisted laparoscopic pyeloplasty. *Journal of Pediatric Urology*, *16*(4), 460-e1. Scopus

Colldén, C., & Hellström, A. (2018). Value-based healthcare translated: a complementary view of implementation. *BMC Health Services Research*, *18*(1), 1–11. Google Scholar

Cossio-Gil, Y., Omara, M., Watson, C., Casey, J., Chakhunashvili, A., Gutiérrez-San Miguel, M., Kahlem, P., Keuchkerian, S., Kirchberger, V., & Luce-Garnier, V. (2022). The roadmap for implementing value-based healthcare in European university hospitals—consensus report and recommendations. *Value in Health*, *25*(7), 1148–1156. Scopus

Goretti, G., Marinari, G. M., Vanni, E., & Ferrari, C. (2020). Value-based healthcare and enhanced recovery after surgery implementation in a high-volume bariatric center in Italy. *Obesity Surgery*, *30*(7), 2519–2527. Google Scholar

Heijsters, F. A. C. J., van Breda, F. G. F., van Nassau, F., van der Steen, M. K. J., Ter Wee, P. M., Mullender, M. G., & de Bruijne, M. C. (2022). A pragmatic approach for implementation of value-based healthcare in Amsterdam UMC, the Netherlands. *BMC Health Services Research*, *22*(1), 1–11. Google Scholar

Heo, D. S., Yoo, S. H., Keam, B., Yoo, K., Choi, I., & Kim, M.-J. (2022). Hospice-Palliative Medicine as a Model of Value-Based Healthcare. *Journal of Korean Medical Science*, *37*(15). Google Scholar

Hines, K., Mouchtouris, N., Getz, C., Gonzalez, G., Montenegro, T., Leibold, A., & Harrop, J. (2021). Bundled payment models in spine surgery. *Global Spine Journal*, *11*(1_suppl), 7S-13S. Google Scholar

Hurh, J., Ko, Y.-H., & Lee, S.-S. (2017). Value-based healthcare: prerequisites and suggestions for full-fledged implementation in the Republic of Korea. *Journal of the Korean Medical Association*, *60*(10), 826–840. Google Scholar

Kuklinski, D., Oschmann, L., Pross, C., Busse, R., & Geissler, A. (2020). The use of digitally collected patient-reported outcome measures for newly operated patients with total knee and hip replacements to improve post-treatment recovery: study protocol for a randomized controlled trial. *Trials*, *21*(1), 1–10. Google Scholar

Lansdaal, D., van Nassau, F., van der Steen, M., de Bruijne, M., & Smeulers, M. (2022). Lessons learned on the experienced facilitators and barriers of implementing a tailored VBHC model in a Dutch university hospital from a perspective of physicians and nurses. *BMJ Open*, *12*(1), e051764. Google Scholar

Luca, L., & Paul, O. (2019). *Price Setting and Price Regulation in Health Care Lessons for Advancing Universal Health Coverage: Lessons for Advancing Universal Health Coverage*. OECD Publishing. Google Scholar

Marotta, C., Di Gennaro, F., Pisani, L., Pisani, V., Senesie, J., Bah, S., Koroma, M. M., Caracciolo,

C., Putoto, G., & Amatucci, F. (2020). Cost-utility of intermediate obstetric critical care in a resource-limited setting: a value-based analysis. *Annals of Global Health*, *86*(1). Google Scholar

Nilsson, K., Bååthe, F., Andersson, A. E., Wikström, E., & Sandoff, M. (2017). Experiences from implementing value-based healthcare at a Swedish University Hospital–a longitudinal interview study. *BMC Health Services Research*, *17*(1), 1–12. Google Scholar

Nojszewska, E., & Sielska, A. (2022). Macroeconomic and Social Indicators to Launch the PM-Based VBHC Model in the Healthcare System in Poland. *International Journal of Environmental Research and Public Health*, *19*(3), 1712. Google Scholar

O'Neill, A. (2022). *Global inflation rate 2014-2024*. Statista. https://www.statista.com/statistics/256598/global-inflation-rate-compared-to-previous-year/

Peters, M. D. J., Godfrey, C. M., McInerney, P., Soares, C. B., Khalil, H., & Parker, D. (2015). *The Joanna Briggs Institute reviewers' manual 2015: methodology for JBI scoping reviews*. Google Scholar

Porter, M. E., & Lee, T. H. (2013). The strategy that will fix health care. *Harvard Business Review*, *91*(12), 24. Google Scholar

Porter, M. E., & Teisberg, E. O. (2006). *Redefining health care: creating value-based competition on results*. Harvard business press. Google Scholar

Ramos, P., Savage, C., Thor, J., Atun, R., Carlsson, K. S., Makdisse, M., Neto, M. C., Klajner, S., Parini, P., & Mazzocato, P. (2021). It takes two to dance the VBHC tango: A multiple case study of the adoption of value-based strategies in Sweden and Brazil. *Social Science & Medicine*, *282*, 114145. Scopus

Rice, T. (2021). Key components of national health insurance systems. *Health Insurance Systems*, 9–33. https://doi.org/10.1016/B978-0-12-816072-5.00004-3 Google Scholar

Rutherford, C., Campbell, R., Tinsley, M., Speerin, R., Soars, L., Butcher, A., & King, M. (2021). Implementing patient-reported outcome measures into clinical practice across NSW: mixed methods evaluation of the first year. *Applied Research in Quality of Life*, *16*(3), 1265–1284. Google Scholar

Ryan, S. P., Plate, J. F., Black, C. S., Howell, C. B., Jiranek, W. A., Bolognesi, M. P., & Seyler, T. M. (2019). Value-based care has not resulted in biased patient selection: analysis of a single center's experience in the care for joint replacement bundle. *The Journal of Arthroplasty*, *34*(9), 1872–1875. Scopus

Schraut, N., Bango, J., Flaherty, A., Rossetti, V., & Swart, E. (2022). High variability in patient reported outcome utilization following hip fracture: a potential barrier to value-based care. *Archives of Osteoporosis*, *17*(1), 1–8. Google Scholar

St John, A., O'Kane, M., Christenson, R., Jülicher, P., Oellerich, M., & Price, C. P. (2021). Implementation of medical tests in a Value-Based healthcare environment: A framework for delivering value. *Clinica Chimica Acta*, *521*, 90–96. Scopus

Stiegel, K. R., Harrington, M. A., & Halawi, M. J. (2021). Value-Based Care for Nonoperative Management of Hip and Knee Osteoarthritis: Current Landscape Not Ripe for Implementation. *Arthroplasty Today*, *9*, 58–60. Google Scholar

Teisberg, E., Wallace, S., & O'Hara, S. (2020). Defining and implementing value-based health care: a strategic framework. *Academic Medicine*, *95*(5), 682. Google Scholar

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., & Weeks, L. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467–473. Google Scholar

Van Veghel, D., Daeter, E. J., Bax, M., Amoroso, G., Blaauw, Y., Camaro, C., Cummins, P., Halfwerk, F. R., Wijdh-den Hamer, I. J., & De Jong, J. S. S. G. (2020). Organization of outcome-based quality improvement in Dutch heart centres. *European Heart Journal-Quality of Care and Clinical Outcomes*, *6*(1), 49–54. Google Scholar

Van Veghel, D., Soliman-Hamad, M., Schulz, D. N., Cost, B., Simmers, T. A., & Dekker, L. R. C. (2020). Improving clinical outcomes and patient satisfaction among patients with coronary artery disease: an example of enhancing regional integration between a cardiac centre and a referring hospital. *BMC Health Services Research*, *20*(1), 1–8. Google Scholar

Varela-Rodríguez, C., García-Casanovas, A., Baselga-Penalva, B., & Ruiz-López, P. M. (2021). Value-Based Healthcare Project Implementation in a Hierarchical Tertiary Hospital: Lessons Learned. *Frontiers in Public Health*, *9*. Google Scholar

Watson, W. T. (2020). *Global Medical Trends Survey Report. Willis Towers Watson*. Google Scholar

Zipfel, N., van der Nat, P. B., Rensing, B. J. W. M., Daeter, E. J., Westert, G. P., & Groenewoud, A. S. (2019). The implementation of change model adds value to value-based healthcare: a qualitative study. *BMC Health Services Research*, *19*(1), 1–12. Google Scholar