

Opportunities and Risks of Terminological Ambiguity: The Perception of Value in Value-Based Healthcare – A Multi-Method Study

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Abstract

Background

Value-based healthcare (VBHC) argues healthcare needs to be refocused to maximize value creation, defining value as the value quota (VQ) of outcomes important for the patient divided by the cost of the care. Value is central to the VBHC concept but could be an ambiguous term for professionals wanting to adopt the concept in an implementation process. We set out to explore the perception of value amongst different stakeholders who implement VBHC.

Methods

The perception of value, cost and VBHC was analysed using content analysis of semi-structured interviews from 19 clinicians and non-clinicians involved in implementation of VBHC. In addition, we exemplified the value quota (VQ) with data from a clinical trial to exemplify the possible association between patient reported outcome measurements (Kansas City Cardiomyopathy Questionnaire and the EQ5D), their perception of care (n=248) and cost.

Results

Clinicians described value as a dynamic concept dependent on the patient and the clinical setting, stating that improving outcomes was more important than containing costs. Value for non-clinicians appeared more driven by the interplay between the outcome and cost or resources. The quantitative data suggested a poor association between patients' perception of value and VQ.

Conclusions

Our findings indicate that there is great variation in how different stakeholders (clinicians, non-clinicians) perceive the key concept of value when implementing VBHC. The most dominant influence was the voice of clinicians, focusing on increasing treatment efficacy and improving medical outcomes but having a limited focus on cost and what matters to patients. Moreover, patients' own perception of value provided during a care period was poorly connected to the calculated value quota. If the concept of value is defined primarily by clinicians' own assumptions, there is a clear risk that history will simply be repeated and the need for innovation will not be met. A single-minded focus on value" could therefore result in missing the target. The patients' and non-clinicians' perception of value must also be integrated with the clinical perception, if VBHC is going to deliver on the promise to increase healthcare efficiency and effectiveness.

Background

Value-based healthcare (VBHC) has been proposed as a paradigm shift in healthcare management in response to rising healthcare costs and quality deficiencies[1, 2]. The term VBHC was initially found in medical literature by Chodrov and Krivenko [3], and also by Mohlenbrock [4], to argue the increased

impact of economy and management on the professional sphere of medicine and to counteract a possible shift from the medical logic toward a focus on process efficiency. According to Porter and Teisberg, value is the result of the patient experienced outcome from the provided care divided by the cost of the intervention over the full care cycle and is referred to as “the value quota” (VQ)[2]. Consequently, the focus within VBHC is on delivering better health outcomes as defined and experienced by the patient (a complex mix not only of survival but also how the patient feels, functions, recovery etc.) throughout the continuum of care, while striving for cost containment[5]. Applying the logic of economy and competitive advantage within healthcare has been argued to drive reductions and increase the quality of the delivered care by means of competition between healthcare providers to achieve the highest perceived value[6, 7], something that has also been implemented in Sweden[8]. Research nevertheless suggests that competition and performance-based reimbursement between healthcare organizations have not shown clear beneficial effects with regards to improvement in the quality of the care⁹ or cost containment/reduction[9, 10].

The challenge of using the concept of “value” is that it means different things to different people in different contexts and also in different episodes. Value is a construct that comprises both attitudes and experiences and is affected by the context and the situation [11, 12] but also by one’s identity, regardless of whether that identity is professional (e.g. care provider) or non-professional (e.g. patient). For example, Quality of life (QoL) is a way of understanding what is important to a patient, meaning that measuring QoL and/or experience of care could arguably highlight different concepts of value for the patient. In modern healthcare management, concepts such as quality-adjusted life-years within health economics, which combines life years gained with the patient perception of QoL, conceptualize value as not only life-prolonging treatment outcomes, but also as living a longer life that is worth living for the patient.

In contrast to the more economy-oriented or managerial view of value, other scholars argue that value is “satisfaction of a want”, i.e. the product of the trade-off in a normative picture of the product/service acquired^[13]. Woodruff and Gardial [14] suggest that value includes a relational aspect between the “want” of a service/product, the recipient and the actual perception of the service/product after using it. So while value could be discussed as a universal perception that combines attitudes, tradition and symbols, it may not be directly associated with the experienced outcomes[15]. The concept of value could therefore be interpreted differently between clinicians[16], as well as between clinicians and non-clinicians, defined as personnel not directly interacting with the patients.

The perceptions, assumptions and attitudes of groups of people, such as clinicians and non-clinicians, form a shared common logic that together with symbols and rituals is institutionalized internally as well as externally by its members and the surrounding context[17]. Professional logics are legitimized and brought to the surface by material things and symbols that provide a normative framework, or “rules of legitimacy”[17], and so logics exist by action and practice. Research has shown that different logics can simultaneously compete¹⁹ and coexist within an organization, not least in institutional environments with strong professional groups, such as in healthcare[18, 19]. Institutions with a long history and strong professional groups, such as hospitals, have a set of shared assumptions and symbols that define the

overall institutional logic[20]. The hospital is a complex interplay between different logics, for example, public vs private, control (managers and administrators), medical perspective of cure (physicians) and care (nursing and other health professionals). According to Glouberman and Mintzberg[21], each logic is driven by its own understanding of the context, which is why discrepancies and frustration occur when different logics have little understanding of the logic of other stakeholders [22].

The implementation of VBHC challenges both the institutional and professional logics of different professional groups. Among healthcare providers, VBHC is in itself a concept touching on both management and professional logics, which means the success of implementing VBHC may be affected by how well the VBHC concept is aligned with the professional logic of providing value for the patients[23]. The perception of value in healthcare is of crucial importance because it is likely to determine the future direction of care. Consequently, there is a need to research the perception of value among different groups within the healthcare setting, as implementing VBHC is likely to result in confrontations between different perspectives and logics within the healthcare organization.

Aim

To explore the perception of value among different stakeholder groups (clinicians and non-clinicians) during an implementation of Value-based healthcare (VBHC).

Methods

Design and setting

This study employed a multi-method, primarily qualitative driven approach using interviews with different stakeholders. As a complement to this, we wanted to test the prerequisites for the VQ during a hospital stay for patients with chronic heart failure by looking at a possible correlation between the VQ and patient reported valuation of care .

Qualitative data collection and analysis

In the qualitative analysis, interviews were performed with stakeholders involved in the ongoing implementation of VBHC. The scope of the interviews was to explore the perception of VBHC among stakeholders, with a particular focus on value and cost. Semi-structured interviews were performed to capture interviewees' perceptions of VBHC focusing on outcome vs cost, the ability to capture individual patient cost in the organization, and perceived facilitators and barriers for implementing VBHC. Primarily open-ended questions were posed. All interviewees received both written and oral information about the research project and gave their consent to participate in the study. All interviews were tape-recorded and transcribed verbatim, the interviews ranging in duration from 27 minutes to 70 minutes. The authors (AW, KN, FE) performed the initial analysis by reading the transcripts several times to internalize the interviews.

Qualitative content analysis[24] was used to structure and analyse the text. In the first naïve coding, we used inductive reasoning to analyse the text, focusing our approach on the perception of value and the relationship between outcome and cost as the creators of value. After the naïve coding, categories were created to further structure the data related to value perception. In the second stage, a more deductive approach was chosen where we used the concept of professional logics to find differences between interviewees with a clinical or non-clinical background in order to investigate differences and similarities between different institutional logics in regard to the perception of value. Finally, the first (AW) and last author (FE) jointly analysed the transcribed interviews and discussed the manifest and latent messages to reach an agreement about coding and the formulation of the themes, which was then jointly agreed upon by all authors. The qualitative analysis was structured using the NVIVO 9 software, QRS International.

Quantitative data

To exemplify the prerequisites of the VQ on patient reported perception of care (PREM), patient reported outcomes measurements (PROM HrQoL) and cost of care, we used data from the Person-Centered Care – Heart Failure (PCC-HF) study[25], a controlled clinical trial evaluating the impact of a shift towards more person-centred care in 5 hospital wards. The study was performed during 2008-2010, long before the implementation of VBHC, so the patient cohort had no connection with the qualitative data.

The study was selected because patients with chronic heart failure represent a large patient group. In the original publications of the study's outcomes, there was no significant difference between the groups regarding patient reported outcomes, length of hospital stay or cost in the intention-to-treat analysis of the study.

1: In the PCC-HF study, patient perceptions of the care, i.e. patient reported care experience (PREM), was captured using the Swedish version of the international Picker in-patient survey[26]. For the present study, we used a single question from the Picker survey, "How would you value the overall care provided?", with response alternatives limited to excellent, very good, good, average or bad. This question was the only question in the in-patient survey that explicitly asked the patient to self-rate their perception of the value of the care.

2: For calculating the VQ, we used two commonly used patient-reported outcome measurements (PROM), the EuroQoL 5D (EQ-5D) and the Kansas City Cardiomyopathy Questionnaire (KCCQ)), as numerators in the calculation of the VQ. The EQ-5D is a patient reported measure of health status independent of underlying disease[27]. The instrument consists of five dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression). Each dimension is scored at one of three levels: no problems, some problems, and extreme problems. EQ-5D score was collected at admission and 3 months after discharge. The KCCQ is a validated, 23 item, disease-specific health-related quality of life instrument for patients with chronic heart failure[28]. The KCCQ scores were collected at admission and 6 months after discharge. Both instruments were evaluated, as an instrument independent of underlying disease could

allow comparisons of VQ and improvements in VQ between different patient groups, while a disease-specific instrument was considered more likely to be sensitive enough to detect the clinical improvement experienced by patients.

3: For the calculation of cost, the care costs available for the analysis were limited to the total costs covered by the hospital.

The data sets were imported into Microsoft Excel 2010 (Microsoft Corporation, Redmond, WA). Costs were plotted versus each of the relevant outcome measures to identify relationships, and the value quota was calculated for each individual patient in the study.

Results

In total, the study comprised 19 interviewees, as displayed in Table 1. Healthcare professionals were divided into clinicians and non-clinicians. The majority of the healthcare professionals (80%) had combined clinician/managerial positions. Interviewees were divided into clinicians and non-clinicians, as they may have been driven by separate professional logics (see Table 2). Two main categories emerged: the institutional logic's impact on value and the challenge of working with cost.

Table 1
Summary of interviewees included in the analysis

	Profession	N
Non-clinicians N = 6	Management consultants	2
	Financial controllers	3
	Logisticians	1
Clinicians N = 13	Registered Nurses	1
	Physicians	9
	Pharmacists	1
	Psychologists	1
	Occupational therapists	1
	Sum	19

Table 2

Examples of perceptions of outcomes, costs and value among clinicians and non-clinicians

Clinicians	Non-clinicians
The institutional logic's impact on value	
<p><i>"For me value it is something personal, I think you should ask the patient so they can express what's important to them, and that differs, of course, depending on their condition, age, education and so forth, so it's important to get the patients' perspective."</i></p> <p><i>We work so much more with outcomes than with costs. That is the brutal truth."</i></p> <p><i>"At the hospital, of course we see our cost and how it impacts our operation. But of course there is a cost to the patient and society that we do not acknowledge, and if you want to deliver value to the patient, you need to see the entire picture."</i></p>	<p><i>"If you try to get the healthcare professionals to produce more, then you will not get much attention or they won't agree with you. But if you have a clear target for what value you want to achieve, you have a higher chance of success."</i></p> <p><i>"You can't separate clinical outcomes and cost. If you work with the numerator (outcome) then you should let the denominator (cost) be unchanged, and vice versa."</i></p> <p><i>"The objective is to deliver as much health as possible for every Swedish crown spent, as there are limited resources available to deliver quality care to the patient using less or the same measure of resource."</i></p>
The challenge of working with cost	
<p><i>"...we haven't done that, only the economists know what the cost is."</i></p> <p><i>"The concept of cost is extremely difficult. It isn't that outcomes are easier, but they are easier to understand, more like a process measurement."</i></p>	<p><i>"We don't measure the patient pathway or the cost per patient. In this case that would be preferable. So the systems are not tuned to this way of working..."</i></p> <p><i>"Because we lack a perfect per patient cost system, we use a resource based system instead. In many cases the length of the hospital stay is the single most important cost driver, so it's a good proxy for cost"</i></p>

The institutional logic's impact on value

Interviewees perceived VBHC as a helpful tool to increase the value delivered to individual patients. However, there were differences between clinicians and non-clinicians in the perception of VBHC. Clinicians often appreciated VBHC, as they perceived its introduction as an opportunity to focus more on outcomes for patients and less on cost containment. In contrast, non-clinicians talked about VBHC in terms of a strategic framework for governance of healthcare provider organizations or as a framework for continuous improvement processes. None of the interviewees considered VBHC as a path to more efficient competition in Swedish healthcare. When asked specifically about what value meant to them, the interviewees focused primarily on outcomes, and it is notable that many of the clinician interviewees did not explicitly mention costs. Non-clinicians perceived outcomes as the key component of driving value but frequently described value as related to costs, and occasionally explicitly described value as related to efficiency. Some interviewees indicated that the introduction of VBHC contributed to an increased

focus on clinical outcomes on all levels of the hospital hierarchy, suggesting a shift in instructional logic at the studied hospital from the logic of care production (volume and flow) towards medical outcomes.

The challenge of working with cost

The majority of interviewees perceived costs per care episode as very difficult to track accurately using the accounting systems currently available at the case hospital, even if the full care cycle was delivered by a single healthcare provider unit. Capturing the full cost to all involved healthcare providers over the full care cycle was perceived as desirable by interviewees but virtually impossible to accomplish. Non clinicians and clinicians used different language when describing the costs. Some referred to cost as an “investment” while others considered it an “expense”. Some interviewees, in particular clinicians, expressed the opinion that investments to improve outcomes and efficiency (for example, hiring more physicians able to see patients) were impossible as long as the improvement increased cost.

The lack of exact per patient cost data forced the project groups implementing VBHC at the case hospital to focus on the activities demanding the most resources, i.e. cost drivers, such as length of hospital stay or number of follow up visits, as proxies for cost.

Correlation between patients’ perceptions of value and the value quota

In order to explore the possible relationship between the patients’ perception of value and the value quota as defined by Porter, outcome was plotted vs. cost, first using the generic health status instrument EQ-5D and then the disease-specific quality of life instrument KCCQ (Figure 1 and 2).

Most patients did not improve their EQ-5D score (median EQ-5D scores were 0.67 and 0.69 before and after treatment), as there was a similar number of patients improving and worsening (Figure 1). There was no clear correlation between cost and the disease-specific QoL instrument KCCQ clinical score (Figure 2).

The KCCQ clinical score was sensitive enough to detect an improvement experienced by patients, as the majority of patients exhibited a higher score after treatment (median 56) than at admission (median 44). The KCCQ clinical score was therefore consequently used as the numerator for subsequent calculations of the value quota. Perceived value of delivered care as assessed by the patients was plotted versus actual cost for the hospital care episode (Figure 3). Cost did not correlate directly with patients’ perceptions of the value of the care they received ($r=-0,182$) but there was a trend for patients receiving very costly care to perceive their care as more valuable, as close to all patients receiving care costing 80 000 SEK or more perceived the value of the care they received as “Excellent” or “Good”.

Patients’ perceptions of the value of the care was plotted versus the calculated value quota (Figure 4) to investigate if the two measures of value were related. The value quota was calculated using KCCQ as

numerator and cost for the care episode as denominator. The value quota did not correlate with patients' perceptions of the value of the care they received at the hospital ($r=-0.165$).

Discussion

While value is a central concept in VBHC, it seems from the studied hospital implementation that the perception of value is different among the different stakeholder groups. While both clinicians and non-clinicians talked about value as a construct consisting of both outcome and costs/resources spent to achieve those outcomes, there was an imbalance in the perception of value. The majority of respondents did not appear to focus much on costs or cost containment, even though it is considered as important an objective as improving outcomes within the original VBHC framework. Clinicians talked about value as a dynamic concept depending on the view of the patient and the context, and put forward that better outcomes sometimes require higher cost/more resources. In contrast, non-clinicians' perception of value appeared to be more aligned with the VBHC framework. While many interviewees indicated that the deficiencies of the current accounting systems hamper understanding of the cost, our interpretation is that there is a clear discrepancy between the concepts of value within these stakeholder groups. In light of this, creating a common understanding of the value concept in order to co-create understanding and contextual dialogue may be pivotal for future implementation processes of VBHC.

The uncertainty introduced by the ambiguous term "value" may present an obstacle to organizations attempting to manage a shift in how they operate, as the ambiguity may introduce friction between professional groups, management, and between patients and providers. Paradoxically, this uncertainty around what value means could also be an opportunity and a way of integrating the different perceptions among the multiple stakeholders, as outlined in this study. A recent study by Nilsson and Sandhof [29] shows the importance of goalsetting, role description and leadership expectations when implementing VBHC, which in previous implementation research has been described as contextual dialogue with the aim of managing understanding[30]. Bååthe and Norbäck[30] present how professional identifies need to and can be modified and they outline an alternative to the prevailing managerial control perspective. Further, they suggest that the manner in which the contextual dialogues are being carried out is what determines if this ambiguity can be considered an obstacle or an opportunity to creating more integrated ways of understanding value for all the stakeholders. Scott [20, 31] argues that professional groups are the most important carriers of institutional ideas because they apply these ideas by defining and interpreting them into the context and situation. It should therefore not be taken for granted that people involved in a change process share the same goals, commitment or understanding of the concept being implemented [32, 33]. Hence, the institutional logic of management may struggle to be infused into everyday practice due to the lack of symbols related to the relationship between outcome and cost (efficiency) within the current environment. Non-clinicians expressed the view of value closest to the original definition of Porter, speaking more in terms of efficiency and balance between outcome and cost. In light of this, the future implementation process of VBHC should take this discrepancy into consideration and create a common understanding of the value concept in order to co-create understanding and contextual dialogue.

Traditionally, the logic of medicine, which is driven by improving outcomes and treatment efficacy, is considered the most influential and powerful. This could impact the chances of other logics to be heard in both the strategic and operational levels of VBHC, for example, the logic of care (such as nursing) or the logic of control (such as managers). We therefore argue that the implementation of VBHC needs to balance different logics, and not least give room to further listen to the patients' voice in this co-creational change process[23].

The present study raises some questions regarding VBV and the patients' perspective of value. From the quantitative analysis it appears that neither cost of the admission period nor the VQ correlated well with patients' perceived value of the care. Using the VQ may therefore not necessarily result in care valued higher by patients, even when such care is more efficacious due to improved outcomes and/or lower cost. This finding is supported by Porter and Lee [34], claiming that there is no known correlation between cost and patient perceived value. As the value quota is calculated as a ratio between outcome and cost, this raises the question of the relevance of the value quota as a tool. While the value quota case in this paper only serves as an example, employing a validated and highly cited HrQoL instrument, we argue that it is challenging to find practical usage of the value quota.

Literature on consumer value has argued the definition of value implies a trade-off between benefits and sacrifices[11], and our findings could imply that the patients in our analysis do not acknowledge value as a trade-off between outcome and cost. This finding particularly makes sense in Sweden, where the healthcare system is "free for the patient" while financed nationally via income tax. Patients are not aware of the related costs involved in creating the experienced individual outcomes.

It could be argued that patients within the Swedish context perceive the concept of value as a process indicator of care rather than the outcome of the care provided. This argument is in line with other scholars arguing that the patient perceives value as the interaction and relational aspect between the provider and the patient [12, 35] rather than only the outcome of a treatment. Patient value may not be solely dependent on outcome and cost for all patients [36, 37]. It is highly unlikely that all patients would value the same measure of outcome of a care episode. It has been argued that patients lack the motivation and the opportunity to make sense of the interplay between quality and price/cost in healthcare[35]. As the patient in VBHC is described by Porter as acting as a "consumer" who chooses the best provider based on outcome or cost, our findings might indicate an inherent barrier to this. We would argue that there are really no consumers of healthcare, just individuals seeking medical, nursing or other healthcare services. The logic of the patient may not be transferable to the underlying assumption of a customer being both able and willing to compare value for money, i.e. price-performance ratios provided by different healthcare providers. From a European perspective, there is insufficient evidence that patient choice as a competitive driver in healthcare has improved outcomes or reduced cost [8, 9].

Our findings suggest that when patients are asked about value with the single question "How would you value the overall care provided?", the answer is not associated with outcomes or cost. And while one could debate the sensitivity of a single question, we believe that for patients, value is a complex interplay

between outcome and relational experiences, including feelings of security and respect, former experiences and future expectations. A recent systematic review has shown that patient experience of care is positively associated with quality of care and a reduction of adverse events[38]. Thus, a one-sided focus on medical/economical outcome could be sub-optimal in improving care, as perceived by patients.

A single-minded focus on outcomes could therefore result in missing the target. While the voice of the clinician is important, it could be argued that the voice of the patient must be considered in practice in order to design a framework for a sustainable healthcare model that is person-centred [39, 40].

Limitations And Suggestions For Future Research

While the scope of VBHC is holistic and includes all levels of healthcare, including in patients' homes and primary care centres, this study was limited in scope to the hospital setting.

The collected data was primarily limited to the implementation of VBHC at one hospital, so it may not be possible to extrapolate the findings to other hospitals in Sweden or other contexts outside of Sweden. However, a single case study format of research has also been argued to provide an opportunity to gain deep knowledge and allow explanation of observed phenomena^{46 47}, thus contributing towards transferable scientific knowledge.

Moreover, the interviewed clinicians were largely clinicians in managerial positions, and consequently may have held different views to other clinicians. Further, as we were unable to interview patients, there was a lack of qualitative data from this group. Instead, patient reported outcome questionnaires were used to explore the potential association between the patients' perception of care and the VQ.

The present study did not find any association between perceived value of care by the patient and the calculated VQ. The patient data used in the present study was not connected to the ongoing implementation process of VBHC, and therefore should only be seen as a demonstrator of the difficulty in measuring and also correlating the perception of value from the patient's point of view. However, although patients were not part of the implementation process, instruments such as the EQ5D are well-known and often used in healthcare registries, meaning our study provides valuable insights into the complexity of the concept of value. Finally, a limitation of testing the VQ is that we do not have data on the whole care episode ranging from the hospital all the way to primary care or home care, which is one of the key ideas in VBHC (the whole care cycle should be improved). Both the EQ-5D and the KCCQ are validated and widely used patient reported outcome measurements in research and clinical care, as well as in the current implementation process of VBHC but we propose future research into the patients' logic to inform healthcare organizations what matters most to patients.

Conclusions

Our findings indicate that there are large variations in how different stakeholders perceive the concept of value. In the present study, bio-medical logic, as propagated by the professional group of physicians,

appears to have a dominant influence over the institutional logic. The prevailing perception was that improving clinical outcomes was the most important way of improving the value of provided healthcare, and this was done by prioritizing improvement of outcomes at the expense of cost containment or cost reduction.

If the concept of value within VBHC is driven by clinicians' traditional assumptions of what value means to patients, there is a risk that history will simply be repeated and the need for innovation will not be met. While the clinicians' voices are important, we argue that a multitude of voices, i.e. patients' as well as non-clinicians', must be integrated with each other if VBHC is going to become a successful care model and deliver on the promise to increase healthcare efficiency and effectiveness.

List Of Abbreviations

EQ-5D= the EuroQoL 5D

KCCQ= the Kansas City Cardiomyopathy Questionnaire

PROM= Patient-Reported Outcome Measurements

VBHC= Value-based healthcare

VQ= Value Quota

QoL= Quality of Life

Declarations

Ethics approval and consent to participate

This study conforms to the principles outlined in the Declaration of Helsinki, and all participants gave written informed consent prior to their interview. The patient reported outcome and experience data was approved by The Regional Ethical Review Board in Gothenburg (DNr 046-08). Swedish legislation does not demand permission from an Ethical Committee when interviewing healthcare professionals (The ethical Review Act, 2003:460 (Amended 2008:192)).

Consent for publication

All participants gave informed consent prior to their interview.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

AW, KN, EW & FE: study design, data collection and analysis, interpreting the analysis, drafting the manuscript. FB & AEA: interpreting the analysis, involved in drafting the manuscript. All authors have read and approved the manuscript.

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References

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1. Porter ME, Larsson S, Lee TH: **Standardizing patient outcomes measurement.** *N Engl J Med* 2016, **374**(6):504-506.
2. Porter ME, Teisberg EO: **Redefining health care : creating value-based competition on results.** Boston, Mass.: Harvard Business School Press; 2006.
3. Chodroff C, Krivenko C: **The role of the coordinator of care.** *Physician Exec* 1994 Nov;**20**(11):11-4) 1994, **20**(11).
4. Mohlenbrock W: **Value-based health care. Part I: Physicians reestablishing clinical autonomy.** *Physician Exec* 1998, **24**(1):26-29.
5. Porter ME: **A strategy for health care reform—toward a value-based system.** *N Engl J Med* 2009, **361**(2):109-112.
6. Porter ME, Pabo EA, Lee TH: **Redesigning primary care: a strategic vision to improve value by organizing around patients' needs.** *Health Aff (Millwood)* 2013, **32**(3):516-525.

7. Porter E, Lee T: **The strategy that will fix healthcare.** *Harv Bus Rev* 2013(October).
8. Anell A, Glengård A, Merkur S: **Sweden: Health system review.** . *Health Systems in Transition* 2012, **14**(5):1-159.
9. Okma KGH, Crivell L: **Swiss and Dutch “consumer-driven health care”: Ideal model or reality?** *Health Policy* 2013, **109**:105-112.
10. Okma KG, Marmor TR, Oberlander J: **Managed competition for Medicare? Sobering lessons from The Netherlands.** *N Engl J Med* 2011, **365**(4):287-289.
11. Sánchez-Fernández R, Iniesta-Bonillo MÁ: **Consumer perception of value: Literature review and a new conceptual framework.** *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior* 2006, **19**:40.
12. Benson KJ, Weech-Maldonado R, Gamm LD: **The role of value in provider-patient-payer relationships.** *Hosp Top* 2003, **81**(3):21-27.
13. DeSouza GR: **A strategic model of price, quality and value.** *Journal of Applied Business Research* 1992, **9**(1):50.
14. Woodruff RB, Gardial S: **Know your customer: New approaches to understanding customer value and satisfaction:** Wiley; 1996.
15. Fredriksson JJ, Ebbevi D, Savage C: **Pseudo-understanding: an analysis of the dilution of value in healthcare.** *BMJ quality & safety* 2015, **24**(7):451-457.
16. Erichsen Andersson A, Bååthe F, Wikström E, Nilsson K: **Understanding value-based healthcare—an interview study with project team members at a Swedish university hospital.** *Journal of Hospital Administration* 2015, **4**(4):p64.
17. Lindberg K: **Performing multiple logics in practice.** *Scandinavian journal of management* 2014, **30**(4):485-497.
18. Arman R, Liff R, Wikström E: **The hierarchization of competing logics in psychiatric care in Sweden.** *Scandinavian Journal of Management* 2014, **30**(3):282-291.
19. Wikström E, Dellve L: **Contemporary leadership in healthcare organizations: fragmented or concurrent leadership.** *Journal of Health Organization and management* 2009, **23**(4):411-428.
20. Scott WR: **Lords of the dance: Professionals as institutional agents.** *Organization studies* 2008, **29**(2):219-238.
21. Glouberman S, Mintzberg H: **Managing the care of health and the cure of disease—Part I: Differentiation.** *Health Care Manage Rev* 2001, **26**(1):56-69.
22. Andersson T: **The medical leadership challenge in healthcare is an identity challenge.** *Leadersh Health Serv* 2015, **28**(2):83-99.
23. Nilsson K, Bååthe F, Andersson AE, Wikström E, Sandoff M: **Experiences from implementing value-based healthcare at a Swedish University Hospital – a longitudinal interview study.** *BMC Health Services Research* 2017, **17**(1):169.

24. Graneheim UH, Lundman B: **Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness.** *Nurse Educ Today* 2004, **24**(2):105-112.
25. Ekman I, Wolf A, Olsson LE, Taft C, Dudas K, Schaufelberger M, Swedberg K: **Effects of person-centred care in patients with chronic heart failure: the PCC-HF study.** *Eur Heart J* 2012, **33**(9):1112-1119.
26. Jenkinson C, Coulter A, Bruster S: **The Picker Patient Experience Questionnaire: development and validation using data from in-patient surveys in five countries.** *Int J Qual Health Care* 2002, **14**(5):353-358.
27. Brooks R: **EuroQol: the current state of play.** *Health Policy* 1996, **37**(1):53-72.
28. Green CP, Porter CB, Bresnahan DR, Spertus JA: **Development and evaluation of the Kansas City Cardiomyopathy Questionnaire: a new health status measure for heart failure.** *J Am Coll Cardiol* 2000, **35**(5):1245-1255.
29. Nilsson K, Sandoff M: **Leading implementation of the management innovation value-based healthcare at a Swedish University hospital.** *J Hosp Adm* 2017, **6**:51.
30. Bååthe F, Erik Norbäck L: **Engaging physicians in organisational improvement work.** *Journal of health organization and management* 2013, **27**(4):479-497.
31. Scott WR: **Approaching adulthood: the maturing of institutional theory.** *Theory and society* 2008, **37**(5):427-442.
32. Schein EH: **On dialogue, culture, and organizational learning.** *Organ Dyn* 1993, **22**(2):40-51.
33. Loup R, Koller R: **The road to commitment: Capturing the head, hearts and hands of people to effect change.** *Organization Development Journal* 2005, **23**(3):73.
34. Porter ME, Lee TH: **Why strategy matters now.** *N Engl J Med* 2015, **372**(18):1681-1684.
35. Sirgy MJ, Lee D-J, Grace BY: **Consumer sovereignty in healthcare: Fact or fiction?** *Journal of Business Ethics* 2011, **101**(3):459-474.
36. Tseng EK, Hicks LK: **Value Based Care and Patient-Centered Care: Divergent or Complementary?** *Current hematologic malignancy reports* 2016:1-8.
37. Ubel PA: **Medical facts versus value judgments—toward preference-sensitive guidelines.** *N Engl J Med* 2015, **372**(26):2475-2477.
38. Doyle C, Lennox L, Bell D: **A systematic review of evidence on the links between patient experience and clinical safety and effectiveness.** *BMJ open* 2013, **3**(1):e001570.
39. Britten N, Moore L, Lydahl D, Naldemirci O, Elam M, Wolf A: **Elaboration of the Gothenburg model of person-centred care.** *Health Expect* 2016.
40. Coulter A, Entwistle VA, Eccles A, Ryan S, Shepperd S, Perera R: **Personalised care planning for adults with chronic or long-term health conditions.** *Cochrane Database Syst Rev* 2015, **3**:CD010523.

Figures

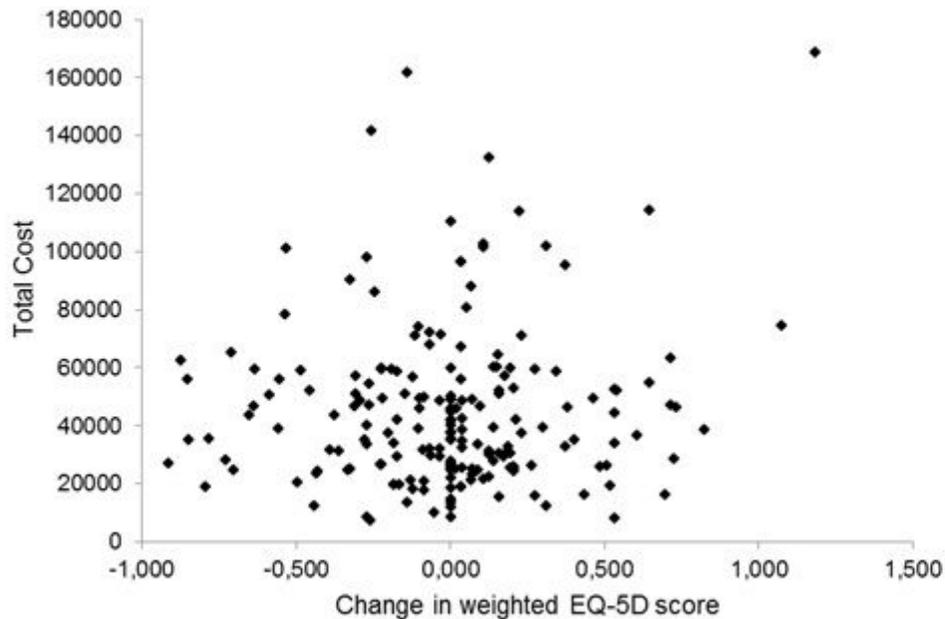


Figure 1

Change in EQ-5D score vs cost. The weighted EQ-5D score was not significantly different at admission compared with 3 months after discharge. Cost and questionnaire response was available for 194 patients.

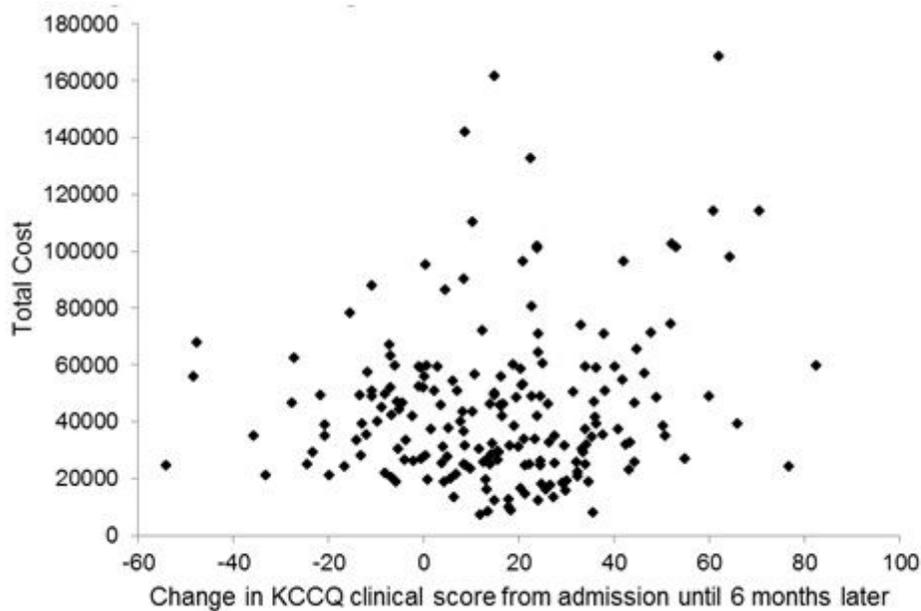
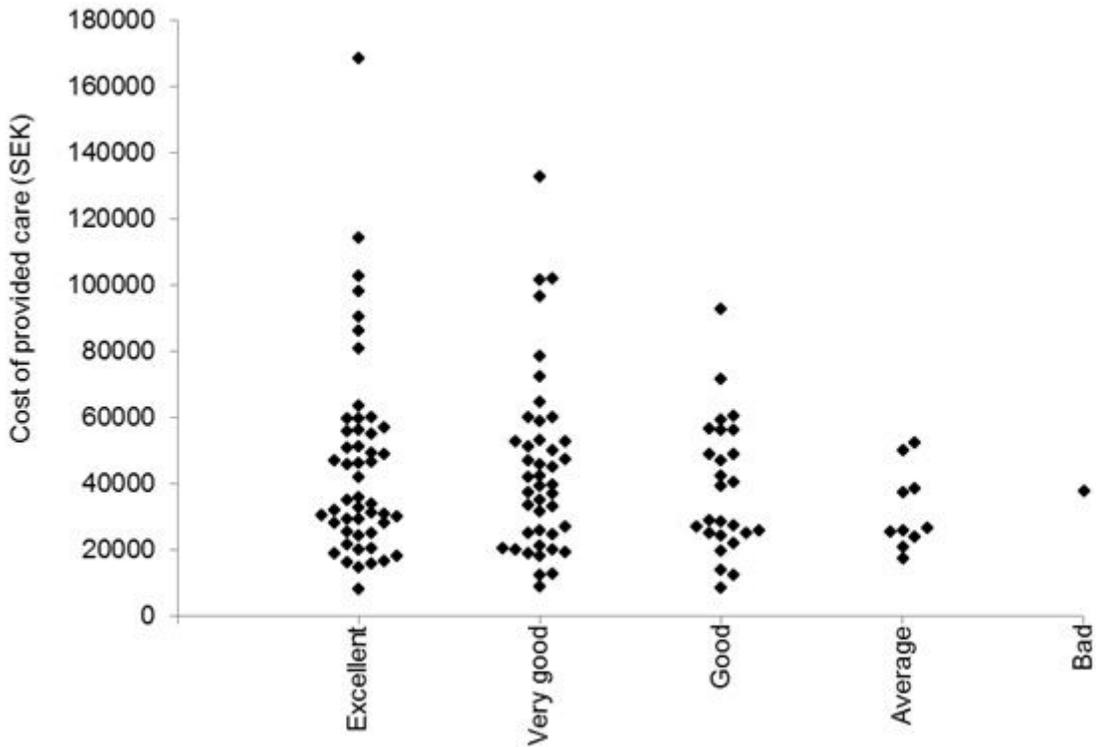


Figure 2

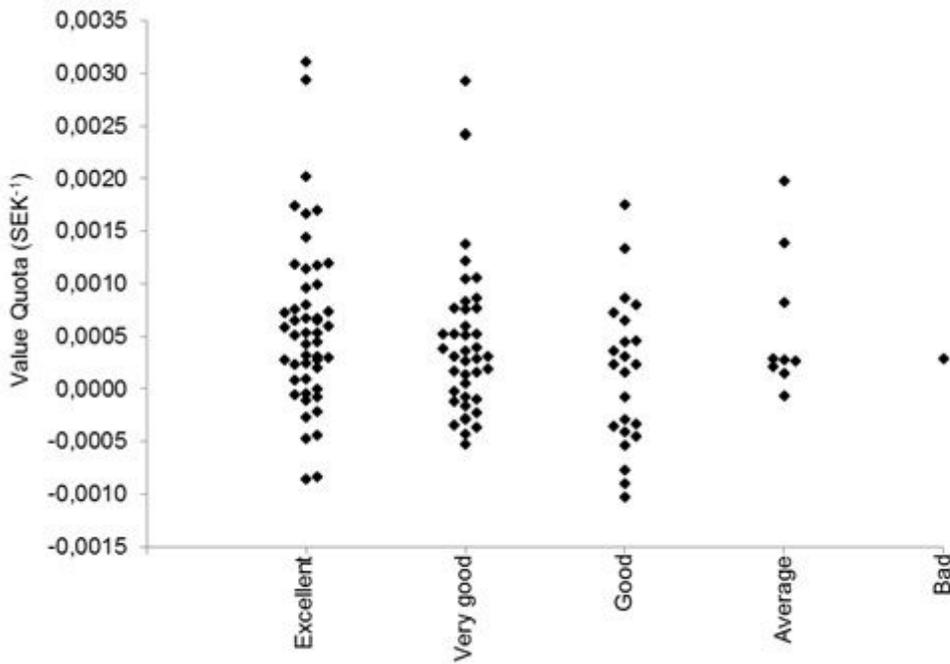
Change in KCCQ score vs cost. The majority of patients exhibited a higher KCCQ score after treatment (median 56) than at admission (median 44). Cost and questionnaire response was available for 195 patients.



Patient response to the question "How would you value the care experience provided?"

Figure 3

In hospital cost vs patient perceived value.



Patient response to the question "How would you value the care experience provided?"

Figure 4

Value quota vs patient perceived value. Sufficient data was available for 123 patients, which were included in the analysis.