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It takes two to dance the VBHC tango: A multiple case study of the adoption of value-based strategies in Sweden and Brazil

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ABSTRACT

Although Value-Based Health Care (VBHC) is widely debated and cited, there are few empirical studies focused on how its concepts are understood and applied in real-world contexts. This comparative case study of two prominent adopters in Brazil and Sweden, situated at either end of the spectrum in terms of contextual prerequisites, provides insights into the complex interactions involved in the adoption of value-based strategies. We found that the adoption of VBHC emphasized either health outcomes or costs – not both as suggested by the value equation. This may be linked to broader health system and societal contexts. Implementation can generate tensions with traditional business models, suggesting that providers should first analyze how these strategies align with their internal context. Adoption by a single provider organization is challenging, if not impossible. An effective VBHC transformation seems to require a systematic and systemic approach where all stakeholders need to clearly define the purpose and the scope of the transformation, and together steer their actions and decisions accordingly.

1. Introduction

Value-Based Health Care (VBHC) is a framework with origins in Porter's theory on strategic management (Porter, 1989), applied to healthcare in response to rising costs and uneven care quality in the US (Porter and Teisberg, 2006). It was touted as "the strategy that will fix healthcare" (Porter and Lee, 2013) and quickly garnered international attention. The goal is to improve value, defined as the health outcomes that matter to patients relative to the cost of achieving those outcomes (the "value equation") by orienting competition between providers towards the relative value they generate for patients and payers (Porter and Teisberg, 2006). The numerator includes outcomes in three tiers – the patient health status and the degree of recovery, the disutility of the process of care, and the long-term sustainability of health – and the denominator includes the costs for full care cycle. The original "value agenda" included six specific sub-strategies (Porter and Lee, 2013). The World Economic Forum updated the framework in 2017 based on practical experiences (WEF, 2017). The value equation remained, and to it were added principles, enablers, and policy less prescriptive than the original agenda.

Several organizations are experimenting with VBHC. While VBHC requires an alignment between organizations and the larger health system context (e.g. through reimbursement systems), a literature review revealed that current applications focus on a select few strategies, rather than the entire framework (SBU, 2018). Moreover, peer-reviewed literature showed a superficial understanding of the main concepts (Fredriksson et al., 2015). These discernible patterns indicate a risk that VBHC could develop into a transient management fad, much like previous efforts to improve health care quality (Walshe, 2009). Therefore, we need a more detailed understanding of how VBHC is understood, adapted and applied in real-world contexts.

VBHC can be seen as an innovation. It is often described by adopting

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leaders as a novel idea, practice and institutional arrangement (Rogers, 2010). Previous studies have framed VBHC as a set of tools and practices that can be simply transported and implemented in a new setting with minor adaptations (EITHealth, 2020). However, VBHC should be viewed as a complex innovation (Greenhalgh et al., 2004) as it involves multiple nested systems, with fuzzy boundaries and various actors influencing each other and society. A VBHC adoption acts on the context, and the context reacts to it, in a set of non-linear adaptative feedback loops that may, and in most cases will, generate unpredictable outcomes beyond the health system boundaries with effects on society more broadly.

In this study, we use the Complex Innovation Framework (CIF) (R. Atun et al., 2010) to explore the adoption of VBHC. CIF has previously been used to study the adoption of complex innovations in healthcare (R. A. Atun et al., 2007). It integrates those dimensions of the diffusion process (Rogers, 2010) that may influence the rate and pattern of adoption (Table 1).

The complexity of adopting VBHC is slowly being acknowledged (Steenhuis et al., 2020). In a global assessment of the contextual "readiness" for VBHC, Sweden and Brazil scored at opposite ends of the spectrum as the countries with the highest and lowest contextual alignment, respectively (EIU, 2016). Despite these contextual differences, high-profile VBHC efforts have emerged in both countries, creating an opportunity to improve our understanding of value-creation in health care. Therefore, this study aims to compare and contrast how VBHC was adopted in contextually different hospitals that publicly touted it as an organization-wide complex innovation and how its application was influenced by contextual factors at the system and organizational levels.

Our paper puts forward the argument to start looking at VBHC through a complexity lens, helping managers and policymakers to uncover the dynamics of VBHC adoption and devise strategies to respond to such developments.

2. Methods

2.1. Study design

This was a comparative multiple case study (Yin, 2017) of the Karolinska University Hospital (**Karolinska**) and Hospital Israelita Albert Einstein (**Einstein**), prominent examples of the adoption of value-based strategies in Sweden and Brazil, respectively, with clear contextual differences (Table 2).

The cases were selected based on their similar history with quality improvement (QI) (Appendix 1) and organizational development work, their location at two extremes of the VBHC contextual prerequisites alignment, data accessibility, and theoretical replication (Yin, 2017), as they were expected to produce contrasting results for predictable reasons, with contextual differences expected at the system, organization, and care delivery value chain levels. Both organizations created dedicated structures for rolling-out VBHC(Makdisse et al., 2018), with senior leadership promoting VBHC nationally and internationally.

Table 1
Components of the CIF (R. Atun et al., 2010).

Problem	The social narrative around the urgency and the scale of the socio-economic burden, influencing the perceived necessity of a robust response
Innovation	Ideas, practices or institutional arrangements perceived as new by adopters, encompassing multiple elements (including technological, organizational and process innovations) and multiple levels
Adoption System	Key stakeholders and health system or societal organizations, with diverse interests, values, power influence and perceptions of the innovation's benefits and risks
Health System	Organizations, people and actions, including regulatory, organizational, financing and clinical functions, whose primary goal is to promote, restore or maintain health
Context	Interaction between the demographic, socio-economic, political, legal, and technological aspects in the environment where problem, innovation, adoption system, and health system are embedded

Table 2
Key characteristics of the organizations.

	KAROLINSKA UNIVERSITY HOSPITAL	HOSPITAL ISRAELITA ALBERT EINSTEIN
Ownership Status/ type	Public (Stockholm County Council)	Private, not-for-profit
Beds	1400	993
Employees	15,800	12,900
Discharges	106,000	84,038
Case-Mix Index	1.2	1.1
Revenue (2017)	1.700 M€	2.825 M$R (~626 M€)
Reimbursement model	Budget	Fee-for-service

The Karolinska University Hospital is a public tertiary academic hospital in Stockholm, situated in two locations following a 2004 merger. In 2013, VBHC was promoted widely in Sweden: three leading university hospitals endorsed VBHC as their future framework for care delivery and established dedicated VBHC offices. Sweden, where QI efforts are commonplace, became a frequent flagship example for VBHC; Jönköping's work was described in Porter and Teisberg (2006), and the Stockholm experience with bundled payments for hip and knee arthroplasty was highlighted in articles and cases (Porter et al., 2014).

Hospital Israelita Albert Einstein is a private, non-profit hospital system managed by the Jewish Community in São Paulo. It has three hospitals and 29 outpatient clinics. It operates under an independent physician staff model, similar to most US hospitals (Casalino et al., 2008). In 2017, a Value Management Office was created as a dedicated center to support VBHC initiatives (Makdisse et al., 2018). VBHC rapidly gained attention by healthcare organizations throughout Brazil, particularly in Sao Paulo. High profile conferences presented experiences from other countries, particularly Sweden and the Karolinska University Hospital. A newly-formed think tank (*Instituto Coalizão Saúde*), supported by some of Einstein's thought leaders, organized workshops with managers from private hospitals, payers, and suppliers to discuss value-based reimbursement transformations.

2.2. Data collection and analysis

Data sources included interviews, official documents, and presentations. We interviewed senior and mid-level managers instrumental to the VBHC adoption (purposive sampling). An initial key stakeholder list was identified based on existing contacts. Thereafter, both groups were expanded through snowballing, where each participant was asked to identify others with insights into the organizations' VBHC strategies. For Einstein, we were also able to include an additional five interviews with senior managers from insurance companies and MedTech suppliers to better understand health system aspects. Data collection stopped when no new relevant content emerged during interviews (saturation), yielding a final sample of 42 participants, 21 in each country.

Interviews were conducted in Swedish or English, in Sweden, and in Portuguese, in Brazil, by PR, CS, KSC and PM between April and December 2018 at participants' workplaces. The authors are experienced qualitative researchers in clinical management and organizational research. Interviews followed a semi-structured interview guide with open-ended questions addressing key domains of the CIF. The guide was pilot tested twice in both countries, resulting in minor wording changes. Interviews were digitally recorded, transcribed *verbatim* in the interview language, and analyzed using NVivo QSR International,V.10.2012.

Interview data were analyzed deductively using directed content analysis (Hsieh and Shannon, 2005). A codebook was developed using the CIF. Coding was conducted in English, with meaning units sorted under the broader domains of the CIF, separately for each case.

Thereafter, condensation occurred inductively where codes were independently and iteratively categorized by PR, CS, and PM, until consensus was reached. The CIF was used to create and compare the two case descriptions, which were then validated and refined with key informants and senior managers.

3. Results

The findings are organized into five sections, corresponding to the domains of the CIF. Key categories (in bold) are described on Tables 3 and 4.

3.1. The problem: VBHC meant to address uncertainty over patient outcomes and rising costs

The two organizations described different problems VBHC was meant to address - inability to measure outcomes, generating fragmentation of care at Karolinska; and soaring healthcare costs due to an inadequate fee-for-service (FFS) reimbursement model at Einstein.

3.1.1. Karolinska

Managers described a **lack of outcome measurements** and **care fragmentation**. Despite enormous publicity and large investments in NQR, quality measurement and follow-up using outcomes was still not possible for many medical conditions. Traditional departmental specialty silos hampered cooperation and clarity around ownership and responsibility for patients' journeys. Silos determined narrow perceptions and generated undesired variations in treatment outcomes, especially for those patients needing multidisciplinary care.

> We created at Karolinska what looked like Germany in the 18th century with a lot of small different states that were their own kingdoms. Cooperation and looking at the patient as a whole became secondary.(K_19)

Official documents described a lack of clear and relevant outcome indicators, care fragmentation, and a third concern seldom detailed in interviews – the **rising healthcare costs** and recurring financial problems with mounting pressure on the hospital to demonstrate value for money.

3.1.2. Einstein

Einstein also framed VBHC as a way to tackle **rising health care costs.** Yet, with a fear that if nothing was done the healthcare system might soon collapse, there was greater urgency for changed and accelerated discussions about VBHC, compared to Karolinska. Managers emphasized that Fee-**for-Service (FFS) was counterproductive** – it generated waste, did not reward organizational efforts to improve quality (e.g. reductions in infection rates or length of stay), and conveyed the perverse message that worse quality of care could lead to higher financial compensation.

> We worked to reduce hospital infections, reduce length-of-stay, we have been improving efficiency over the years, but this did not translate into the financing.(E_10)

Table 3
VBHC - the problem, the innovation, and the adoption system.

	KAROLINSKA UNIVERSITY HOSPITAL, SWEDEN		HOSPITAL ISRAELITA ALBERT EINSTEIN, BRAZIL	
problem *Why is your organization working with VBHC?* *What is it trying to solve?*	**Care fragmentation**	Siloed approach to patient care; Lack of ownership over the full patient pathway	**Rising healthcare costs**	Financial unsustainability of the current system; Increase in costs due to overutilization of care
	Lack of outcomes measurements	Insufficient knowledge on care quality; Inability to demonstrate excellence in care delivery	**Counterproductive logic of Fee-for-service**	Incoherence of the financing model generates overutilization and does not reward effective and efficient practices
	Rising healthcare costs	Need to demonstrate accountability for money invested	**Opportunity to demonstrate leadership role**	Pioneering attitude of the organization; Interest in anticipating transformations in healthcare
Innovation *How do you define VBHC in your hospital?*	**New Operating Model**	Connect care in a patient flow perspective; New managerial roles and multidisciplinary team to guide decisions for each patient group	**New Financing Model**	Bundled payments for specific medical conditions; Built upon previous successful 2nd opinion programs
	Put the "*patient first*"	Prioritize patient needs – shift from provider-centered to patient-centered care; Measure success from the patient perspective	**Minimizing costs**	Provider competition on costs; Shift from maximizing revenues to managing costs
	Outcomes measurement –*Steering cards*	Outcome measurement to drive QI; Measure outcomes from the patient perspective (PROMs); Overcome limitations of NQR	**Designing population health management strategies**	Health prevention and promotion strategies, including primary healthcare
Adoption system *What are the challenges OF VBHC and How did the approach change in response to theM ?*	**Collision with traditional medical specialty-based organization**	Challenges to harmonize patient flows with traditional medical specialties and the academic organizational structure	**Collision with prevailing fee-for-service model**	VBHC as a concept under early exploration, still nascent in the market; financing mechanisms tied to FFS logics
	Challenges to existing power structures	Change management failures tied to creation of new roles challenging established power structures	**Challenges for the independent physician model**	Need for greater hospital-physician integration and physician involvement in VBHC discussions
	Lack of mandate and support for newly established roles	Difficult to decentralize budget and adapt data and IT-structure to the flow level; unclear role for patient representatives at the oval tables	**Data challenges**	Data fragmentation between providers
	Data challenges	Data infrastructure misaligned with the NVM; lack of patient-reported data	**Patients as challenging stakeholders**	Patients demand for high-cost treatments and low-value clinical practices
	Challenges for the education and research mission	Mismatch between organizational models of the hospital and the university; Fragmentation of educational responsibilities for residents between themes; Lack of clear definition of undergraduate students' paths from the beginning; Increased complexity for driving clinical research projects		

Table 4
The influence of the health system and of the broader context.

	KAROLINSKA UNIVERSITY HOSPITAL, SWEDEN		HOSPITAL ISRAELITA ALBERT EINSTEIN, BRAZIL	
Health system *WHICH factors in the health system have influenced your efforts in VBHC?*	**Systemic aspect of the transformation**	Three concurrent large-scale transformations create management difficulties and spill-over effects	**Systemic aspect of the transformation**	Requirement for holding a multi-stakeholder approach for conducting VBHC strategies
	Consequences for research and education	Mismatch of the organizational structure for VBHC, research and education of students and residents in a healthcare network (the "University Health System")	**Challenges involving insurance companies**	Lack of trust; Passive behavior of payers; Challenges in deciding which market segments could be involved in VBHC
	Care Fragmentation	Patient flows limited to Karolinska; need to link to other providers for a full cycle of care	**Care Fragmentation**	Limited ability to follow-up patients and their outcomes throughout the full cycle of care across disparate providers
	Misaligned financing model	Main purchaser's fixed budget allocation misaligned with the new patient-flow organization	**Misaligned regulatory requirements**	Challenges to innovative financing models due to regulation reflecting fee-for-service logics
context *HOW DID the broad context AFFECT the introduction of VBHC?*	**Political influence and Media inquiries**	Media pick up associations' and unions' critique over transformations and question consultancy role; Political uncertainty due to election cycles	**Economic crisis**	Financial crisis as an impetus for health system financial sustainability discussions

VBHC was described as an **opportunity to demonstrate a leadership role** for a sustainable health care system able to address the needs of the wider population (i.e. broader insurance segments).

3.2. Innovation: different roads chosen

Strikingly different rationales emerged for what constituted VBHC and how to generate value. Different perceptions of the problem generated different proposals for solutions: at Karolinska, the effort was directed towards adopting new organizations, processes and tools that could facilitate outcomes measurement and care integration. Einstein, on the other hand, developed new financing models and population health strategies focused on reducing costs.

3.2.1. Karolinska

The change process began in 2013, when VBHC was piloted in ten patient pathways constituting approximately 10% of patient volume. Process-oriented methodology from the preceding lean effort (Mazzocato et al., 2014) was used, focusing on improvement of patient flows that crossed departmental boundaries. In late 2014, a new executive team was appointed and developed a "patient flow oriented" **new operating model** plan (*Nya verksamhetsmodellen*, "NVM") (Box 1).

Lessons from the ten pilots were incorporated, e.g. the need for a first-line manager, a "patient flow captain" with a strong mandate to manage each flow, and a team-based approach to better integrate the competencies needed to manage the entire care delivery value chain – the "oval table".

> One major opportunity is that you collect different specialties, healthcare professionals, patients, comptrollers, into the same [oval] table, around a specific disease, and ask the question, "What is important, which areas is patient care for this disease not optimal? Where do we put our effort? Is it on pharmacology, is it on patient care at home? Is it the surgical procedure? What can we improve?" There is no natural setting for this in the old system, but this is at the centre of the NVM … (K_01)

Over time, the organizational discourse shifted from VBHC to NVM, creating confusion - some managers used the terms interchangeably; but for most, NVM was defined as the organizational model centered on patient flows, while VBHC was about **"putting the patients first**" and

Box 1
Karolinska University Hospital's New Operating Model ("NVM") Plan. Source: Internal documents

- Organizational matrix structure with seven medical themes (Ageing, Cancer, Children and Women's Health, Heart & Vascular, Infection & Inflammation, Neuro, and Trauma & Reparative Medicine) and five functions (Allied Healthcare Professionals, Emergency Medicine, Laboratory Medicine, Perioperative Medicine & Intensive Care, and Radiology & Imaging), comprising 260 diagnosis-based patient care flows
- New managerial roles, including the patient flow captain (PFC) – a flow manager with the responsibility and resources to design, manage, and continuously evaluate the entire patient flow, regardless of where in the organization activities take place
- *Oval* table meetings, hosted by the PFC, where interprofessional and interdisciplinary teams (doctors, nurses and allied healthcare professionals, researchers, business comptrollers and patient representatives) make strategic decisions and co-design optimal pathways for each flow
- Transparent measurement of outcomes and costs using digital scorecards (*steering cards*) for patient flow team meetings, patient flow management, and continual improvement
- Integration of care, research, and education, through collaboration with the Karolinska Institutet at all management levels
- Responsibility to implement the new operating model rests with the Chief Operating Officer and the Strategic Healthcare Development and Care Production team.

Source: Internal documents

measuring and improving outcomes. 'Patients first' was described as an "attitude change that the organization should focus on patients more than before" by empowering teams to measure performance from a patient perspective. This required the development of **digital steering cards** to monitor outcomes more closely, including patient-reported measurements (PROMs and PREMs). For managers, this was an improvement over most NQR which lacked timely feedback loops and emphasized a clinician perspective. Focus on outcomes was underscored by managers as the "Swedish VBHC approach" in contrast to the US VBHC focus on the cost component and outcomes-based reimbursement.

> I think we adapted a little bit, we toned it down, just going with the denominator in that equation. It becomes too hard to focus too much on the economy. But I think if we can reach a higher quality, then the economy will follow suite, without focusing too much on the cost. (K_015)

3.2.2. Einstein

The innovation encompassed **new financing models** for the Brazilian private sector, away from volume (FFS). Contrary to Karolinska, managers described VBHC in financial terms, particularly bundled payment pilots for treatment of specific clinical conditions over a predefined period. Outcomes measurement, post-acute follow-up care, and risk-sharing agreements with suppliers for potential treatment complications could be added to incentivize value creation.

> When we discuss VBHC, if we don't have commercial products, we cannot truly believe that we are migrating into a value-based system. We have business models, VBHC payment models, and specific products for different medical conditions and specific procedures, where we have to include outcome measurement and costing.(E_04)

When Einstein started discussing alternatives to FFS, bundled payments were a logical next step following on "bundled" inpatient procedures and the success of previous "value"-driven projects. One oft-cited example was the 2nd opinion program the hospital had started in 2011 with an insurance company for spine surgery patients, where the hospital was not part of their plans' network. Patients had an indication for spine surgery and were evaluated by the Einstein's spine team; of these patients, 66% received a lower-cost clinical recommendation (Lenza et al., 2017). According to managers, the program was an example of how the hospital, the patient and the insurance company could benefit with VBHC. Some managers explained that bundled payments could expand the spine program by adding longer follow-up for those patients and financial warranties tied to outcomes.

Bundled payments were described as a "paradigm shift" from maximizing revenues to **minimizing costs**. Care that was previously a "revenue" became a "cost" that needed to be managed without reducing quality. Managers expected this to produce a virtuous cycle towards systemic financial sustainability, by incentivizing good clinical practice and generating greater demand for better-quality providers, while penalizing low-quality doctors, hospitals and suppliers. Einstein's senior leadership emphasized that VBHC was not "one size fits all" and that would need tailored financing models for subpopulations and payers. Value-based payment, defined as linking payment to outcomes, would be the end-stage.

> (…) we will have fixed prices and an expected margin. We'll do cost management and no longer track [financial] results. This is going to be a brutal change (…) When you stop doing this [fee-for-service], you penalize the hospital financially because it didn't perform as expected, it allowed an infection to occur. You completely change this system - you reinvent the system operation.(E_25)

Focus was also placed on extending the hospital influence beyond inpatient care, which was not part of Karolinska's NVM. Bundled payments were deemed insufficient alone to deliver value since they do not incorporate preventive or health promotion strategies. Innovative business models were created to strengthen primary healthcare and for **designing population health management strategies**. This led to opening in-company clinics at large employers or promoting telemedicine visits and remote monitoring technologies to keeping patients outside the hospital.

3.3. Adoption system: mismatch between VBHC and traditional hospital business models

In both organizations, VBHC adoption challenged established business models, "the rationale for how an organization creates, delivers and captures value" (Osterwalder and Pigneur, 2010). Karolinska faced challenges matching the new organizational model with the research and education missions, whereas Einstein's new financing models could require changing the relationship with their independent physician staff and with their patients.

3.3.1. Karolinska

The perception was that the NVM **collided with the traditional medical specialty organization**. Changes in the leading structure and in the physical locations determined divisions of some medical specialties generating unwanted negative effects. There were opposing views about whether the NVM was needed to achieve better outcomes (VBHC). The main advantage described was the potential for more interdisciplinary care and research for specific patient groups, to develop world-leading treatments. The main disadvantage was the risk inherent in sub-specialization, making it difficult to provide value for patients and to train residents and students. Other Swedish academic hospitals were pursuing a VBHC transformation without changing the specialty-based organization, and many saw this as a more viable strategy.

> (…) the organization according to specialties is outdated (…) we look at diseases and ask "What is needed to treat those diseases?" We try to organize those together, but it does not match the medical specialties as they were 60 years ago. This is our biggest struggle, what all the commotion is about, and all the resistance.(K_10)

> (…) at this moment, my specialty, and the concept of it, is under threat, maybe a bit too strong of a word, but it actually is so. I want to prevent this from happening.(K_12)

The establishment of the PFC role **challenged existing power structures**, a psychosocial dimension of the change not completely anticipated, acknowledged, nor managed by the executive team. Some former division heads were depicted as resistant to change, not wanting to "let go of their old departments" avoiding making their patient areas multidisciplinary to the extent that they should be, i.e. many patient areas were still comprised of only one specialty.

> The problem is that Academic Medicine is a completely different beast(…) a cutthroat business; people have very sharp elbows and tend to cling onto whatever power or roles they have with their lives (…) people who spent their whole life, devoting themselves to their patients, but also to themselves and their research and building their career, and you say, "Now we're going to change this. The position you have finally managed to attain … will not exist, and we want you to drive this change process". It's very difficult for people to do that (…) I think this is the biggest struggle for the hospital nowadays, the people who committed to this change, like within our patient area, we built a nice framework, we attracted a lot of good people, but the budget is with our old department and the OR space within another department. We're sitting with [nothing] … and the people who decided not to do anything, they're sitting with their old budget, old OR space, old people.(K_09)

There was a perceived **lack of mandate and** support **for the newly**

established roles, which generated confusion and frustration. The original ambition to decentralize the management of resources, outcomes and improvement at the PFC level through digital steering cards did not fully materialize. This was attributed to financial systems that were not aligned with nor re-arranged in accordance with the NVM, and the **data challenges**, namely the EHR that was unsuitable for capturing structured outcomes data, including patient-reported outcomes. The role of the patient representatives at the oval table also proved challenging. Some managers thought that patient representatives could provide interesting reflections and learning through their experience, but some staff were unfamiliar and even uncomfortable with this. A general perception was that in the end, the organization had new titles, but old structures remained.

Undergraduate and residency training faced challenges. Coordination and responsibilities for education became unclear, e.g. specialists did not want to teach in other hospital themes and teaching resource allocation became difficult. The thematic organization did not match the university's organization of undergraduate education, which was supposed to have adopted the same structure. Students' paths were not considered on the initial designs of the new leading processes and organization. Research and educational activities became scattered across themes.

> We have the [dermatology] residents in our theme. We must allow them to work and to get training in the cancer theme, where they will learn about skin tumors, malignant melanoma, …. Since we don't have that care anymore in our theme, it's in the cancer theme [it's more challenging now]. We must make sure they get full education. (K_02)

3.4. Einstein

Fee-**for-service was still the prevailing incentive model** in the market; therefore, there was unease with discussing projects where revenue was not exclusively linked to patient volume. VBHC **challenged the independent physician staff** model, in terms of hospital-physician relationships, and the need to involve clinicians in VBHC discussions. In the independent physician staff model, doctors were the main avenue for patients into the hospital. With VBHC, patient demand could come directly via the payers. This required the hospital to select clinical teams that better performed on KPIs incorporated into payment models (e.g. better outcomes, controlled costs, lower complication rates). Some managers speculated on an eventual salaried physician model, to concentrate patient volume with fewer clinical teams and more easily evaluate outcomes. Clinical teams would then be more committed to the organization, making it easier to align clinical practices with clinical protocols set forth in the VBHC models. A core "institutional" group of physicians, engaged in designing the bundled payments and in promoting their implementation, could facilitate such development.

> For a pilot, you have to test the model with people you trust; firstly, the ones with the highest volume, so you can evaluate the consistency of the outcomes, and secondly with those that are partners … so we have to start with doctors A and B. But at some point, I do not know if 5, 10–15 or 50 years from now, we will have to decide if doctors C and D join the group, or if they stop practicing at the hospital.(E_07)

Managers highlighted that the involvement of clinical staff was a crucial factor. A few key physician leaders were highly involved in designing VBHC models in their area of expertise and became in-house proponents. They described their colleagues were afraid of VBHC transformations due to financial aspects and their own clinical practice habits tied to FFS. Managers described the importance of engaging and communicating with clinical staff about the urgency for change. Senior leaders were personally engaged in this process, leading internal workshops and conferences with physicians and sponsoring staff surveys to raise awareness about VBHC (Makdisse et al., 2020).

Similar to Karolinska, Einstein experienced **data challenges**. With patient data spread across different hospitals and insurance companies, it was difficult to follow patient flows and design bundled payments over longer follow-up periods. Furthermore, administrative systems were not conducive to bundled payments, i.e. billing practices at discharge made it difficult to invoice for the full care cycle.

Patients were viewed as a challenging stakeholder, due to their expectations regarding choice of doctor and service utilization when benefitting from an expensive health plan; this could conflict with the goal of VBHC.

> The [concierge] service we provide is not comparable to developed countries: the doctor available 24 hours/day, choosing the room you want, the surgery day (…) With this business model change, [the patient] will also have to understand that it is better for him to go to an institution with doctors delivering consistent outcomes, that these are the best doctors, and the best doctors are not those on Instagram. (E_07)

3.5. Health system: failing system-level prerequisites counteract VBHC

In both cases, we found that VBHC adoption was dependent on system-level conditions which took time or did not fully occur. At Karolinska, the new operating model was not accompanied by a network reorganization or new care financing models, leaving the hospital with misaligned organizational structures. Similarly, at Einstein, the relationship with insurance companies, the monitoring of patient care and even regulatory requirements were tied to FFS logics, creating challenges to innovative reimbursement models.

3.6. Karolinska

VBHC adoption occurred at a time of major interconnected changes in the hospital and Regional health system: a restructuring of the healthcare system (*what we do*), move to a new building (*where we work*), and the adoption of the NVM(*how we work*).

This **systemic aspect of the transformation** was the result of a decade-long highly politicized process (Qvist and Johannesson, 2018). It involved implementing a regional networked care model, moving care out of Karolinska University Hospital, especially for patients with chronic conditions, and narrowing the hospital role as a highly specialized hub (SLL, 2008). The network model meant that student and resident training became distributed and had to be integrated across different providers.

The hospital relocation to a new €6.8bn building (*Nya Karolinska Solna, NKS*) in the end of 2016 was designed to match the "narrower" mission of highly-specialized tertiary and quaternary care. The 900-bed Solna site was reduced to 600 beds, with a quarter dedicated to intensive care. The other Stockholm system hospitals were assigned with absorbing many of the diverted patients.

The NVM thematic organization with all themes (except Ageing), were defined *a priori* by the county council in 2011. Senior leadership saw the new highly-specialized care portfolio as an opportunity to push for new ways of organizing (NVM), to make use of the large investment in the new hospital, and to build the narrative for the transformations, by presenting them as non-negotiable terms.

> It was not something we came up with– "Let's change the care portfolio worth one billion SEK." No, what really happened was the Region removing one billion from our budget. When it comes to how we work, it's the same thing, it's very hard to see an organization move into NKS and pretend that the house looks the same as it always did.(K_18)

The system transformation took time to materialize, which influenced internal organizational changes. According to Karolinska's managers, transforming into a highly-specialized hospital proved difficult as the Regional health system struggled to absorb care tasked to other providers, increasing tension over the thematic organization created for high specialization. There was also growing concern over the **consequences for education and research**, since the network model was, in most aspects, not harmonized with how research and education would fit the overall regional strategy (SLL, 2017).

> Karolinska's assignment is highly-specialized care and we're sending the other care out, but we're still responsible for the education. Herein lies the problem. We probably shouldn't be. We probably should have education at the other hospitals that provide that sort of care, which is the bulk of what you are educated about. During your final years of education, you should come to Karolinska to do your rotations and get a feel for highly-specialization.(K_10)

Managers mentioned the risk of higher **fragmentation of care** by the patient flow organization (NVM) restricted to Karolinska, making it difficult to refer patients back to the network.

> If we really want to do this well, we must understand that the patient's journey does not start and stop within Karolinska. It usually starts and ends somewhere else, and until we have a common view of how to organize this within at least the county, we will only be able to create this in an island of Karolinska.(K_10)

Despite initial efforts to develop reimbursement models to support VBHC, **financing of care was not aligned** with how the new Karolinska thought in terms of care production and outcomes monitoring. Funds were still allocated through annual budgets tied to production metrics, while the hospital attempted to internally allocate according to the NVM. Despite the new specialization assignment, it was unclear which patient populations the hospital was responsible for, and how it would be reimbursed.

> Porter's theory is based on a different basic financing model than we have in Sweden, since financing occurs from beneficiaries outside our hospital, from the county council; yet they have not changed their financing model in accordance with the mission we have and the business model we implemented.(K_19)

The complex interplay of multiple system and organizational changes, and the struggles for system-level changes to materialize, created management difficulties and pressure on managers. Daily operational issues (e.g. shortage of beds or staff) drained managers energy and made it difficult to lead staff through the roll-out of the new operating model and new care assignment.

3.6.1. Einstein

VBHC discussions were also influenced by system-level logics. Many managers and insurance companies emphasized the **systemic aspect of the transformation** – the adoption could not be conducted by one single organization, it needed to involve many stakeholders.

Some emphasized **difficulties involving insurance companies**. The lack of trust between insurance companies and hospitals was described as the greatest barrier for VBHC adoption. Historical mistrust generated the perception that one's counterpart had profited more from the *status quo*, and therefore should sacrifice more in the "new world". It was also argued that insurance companies should lead the discussions because they were losing clients and had the most to gain from VBHC models. Yet, in most cases, they were passive and expected providers and suppliers to suggest and lead discussions. Some attributed this to the lack of knowledge over outcome measurement and benchmarking. This complicated evaluation of new financing models despite accurate data and well-designed models presented by providers. Discussions with payers also focused on how bundled payments would change market segmentation, both in terms of clinical conditions and insurance plans. Managers reasoned that if the hospital managed to pilot VBHC projects with "new patients", it would eventually have to offer them to current patient populations.

> Another big challenge is to reach out to the insurance companies and make them understand that VBHC in practice may in fact, first: be real. We are not lying. And there is always a relationship of distrust, isn't there? And secondly, to understand that it is advantageous for the whole system.(E_01)

Medtech suppliers, on the other hand, were very interested in VBHC models, involved in discussions about risk-sharing agreements on bundled payments. For some, the quality warranty provided in bundled payments was experienced as additional pressure for a price discount in a market experiencing economic crisis, and VBHC was the opening "sales pitch". For others, suppliers were truly adjusting their value proposition to align with VBHC models, e.g. by marketing products to help the hospital achieving better value. An increased proximity with medtech organizations led to innovation projects, to co-develop and test new products, a movement also seen at Karolinska.

The level of monitoring and control required in the new VBHC models was hampered by **fragmentation of care** in the Brazilian private market. Patients visit different hospitals or undergo follow-up care at their physicians' office using different EHRs, creating difficulties to collect outcomes data and assume responsibility over the full care cycle.

> The health system between different hospitals and insurance plans is absolutely fragmented (…) Patients have a procedure here, but will not necessarily have follow-up with our doctor. Doctors may even be practicing at Einstein, but patients go to their offices, scattered throughout the city … and they will evaluate them on paper. We have zero control over this patient. It is possible that he will have surgery here and treats a complication in another hospital.(E_07)

Misaligned regulatory requirements tied to FFS logics hindered development of innovative models satisfactory for all stakeholders.

> Even when we guarantee that the treatment will be better, the patient will be more satisfied, at a cost almost half of what it is nowadays … Payers understand it is interesting, but they say they cannot follow through with this [model] due to regulatory constraints.(E_12)

3.7. Context: a changing society with economic and political challenges

The broader context involved new demographic and epidemiological needs, financial challenges, governance uncertainty, a changing society with more empowered patients, and technological innovations disrupting healthcare.

3.7.1. Karolinska

Due to the public governance of the hospital, **political influence and media inquiries** played an important role in how management and staff understood and dealt with the organizational transformations, soaring building costs, media scrutiny of management consultancies' role and influence in decision-making (Paterlini, 2018), and unions and professional associations' criticism of the NVM. The daily media *buzz* targeted the "VBHC strategy". With the political atmosphere intensifying during the 2018 national elections, staff engaged half-heartedly. Managers stopped using the "maligned" term "VBHC", talking instead about "K [arolinska]-value".

Health care is extremely politicized, meaning that for the last year a lot of people are hedging. Who is going to win the election? Are we going to do a complete transformation? Are we going to go back? I want to keep my job, which means I want to be halfway committed this way, but I want to make sure that I've hedged my bets so I can stay, which makes

it very difficult.(K_09).

3.7.2. Einstein

In Brazil, the **economic crisis** was continually highlighted as a key accelerator for VBHC discussions. Unemployment, reduced coverage or loss of insurance created the feeling that change was needed for both providers and payers to survive. The economic pressure changed stakeholder relationships – companies contracted directly with providers, insurance companies losing customers willingly partook in VBHC discussions, and competitors began to cooperate. Doctors understood the system was in trouble and as the economic crisis reduced patient volumes, became more open to new financing models. While healthcare leaders disagreed about whether the transformation would have occurred without the economic crisis, most agreed that the discussions would continue regardless of the economic cycle.

> I feel that, unfortunately, the economic part eventually led to the change … because we always had problems, but the system endured. Nowadays, we cannot maintain this system due to economic problems; nowadays the change in the economic scenario is forcing us to find something less costly, and still provide excellent treatment. (E_015)

4. Discussion

We identified three patterns related to how VBHC was adapted to and influenced by contextual factors at the system and organizational levels: adaptation to fit the context; tension with the underlying business models; and need for a continual and active multi-stakeholder system-based alignment.

4.1. Cross-case comparison through a complexity lens

As a complex innovation, the understanding over VBHC self-developed, adapted to actions and reactions by different stakeholders, "learnt from experience", and dynamically changed in unforeseeable ways. In Brazil, for instance, doctors as independent practitioners are simultaneously "clients" and "suppliers" for organizations adopting new financing models. At Karolinska, dynamic interactions with several actors (e.g. international organizations, consultancy companies, …) led VBHC to evolve from pilots with process-oriented methodology to a large-scale new operating model transformation, while the internal power struggles, failed assumptions, and interaction with other actors (e.g. media, unions, …) later contributed to its scale-down and, ultimately, abandonment. These developments were non-linear, they were influenced by feedback loops, where different "system inputs" (e.g. hospital managers, the data systems, the health system players, the media, …) at different moments generated different outputs - positive at first, presenting Sweden as the "El Dorado" of VBHC. Later, however, VBHC was not sustained.

4.2. Adaptation to fit the context

VBHC was adapted to emphasize different sides of the value equation, at Karolinska on health outcomes and at Einstein on costs. These differences may be linked to broader health system and contextual factors influencing adoption. In Sweden, the focus on outcomes measurement can be attributed to the long-standing tradition of QI initiatives and NQR, and the laws regulating health care, which emphasize equity in access and quality. Even if the initial national-level discourse around VBHC involved benchmarking initiatives and the piloting of innovative reimbursement models (Porter et al., 2014), Karolinska managers emphasized the differences between the "Swedish approach" (outcomes) and the "US-based" reimbursement perspective. This mirrors the skepticism faced by previous management approaches, namely lean, that were interpreted to be part of a "hidden economic agenda" (Savage et al., 2016). In Brazil, the incentives on the FFS market and the context of the financial crisis set the stage for VBHC to emerge as a solution to contain galloping healthcare costs, with less focus on health outcomes. Brazil had the 4th highest healthcare inflation rate among nations – average employer healthcare spending grew 150% in the past 7 years (5x higher than the inflation rate in 2019), which made health benefits the 2nd largest share of HR expenditures, after salary. In this context, large employers, who ultimately bear these costs, challenged the system into rethinking its financing models, similar to developments in the US (Slotkin et al., 2017).

There is a distinction that can be made between adoption of the framework, a piecemeal adoption of parts of the framework, and an adaptation of the framework to the local context. Mirroring previous studies (Colldén and Hellströ; Steinmann et al., 2020), we found examples of piecemeal adoption and local adaptation of VBHC, with adopting organizations emphasizing certain components that best fit their system, while toning down others that do not or are hard to adopt. Yet, it could be argued that certain key components, such as comprehensive understanding of the numerators and denominators of the value equation, are necessary if one is to consider the efforts an example of VBHC.

4.2.1. Tensions with traditional business models

Both cases suggest that choices about how to operationalize value-based concepts may trigger tensions with traditional business models. At Karolinska, conflicts emerged with the organization's education and research activities. The mandate for highly specialized care generated a mismatch between the care portfolio and access to the more general patient populations needed for medical and residency training and for clinical research. Furthermore, despite the move towards a patient-flow orientation, education (training, licensing, continuous professional development, etc.) was still structured around medical specialties. Thus, universities and regional healthcare providers need to harmonize their organizational structures to enable and reap the potential benefits of a value-based approach. Establishing collaborative models may be a prerequisite to simultaneously achieve high value care, education and clinical research. Karolinska is now discussing strategies for strengthening education where "the student follows the patient" helped by the establishment of less-specialized sites in other community hospitals. In Brazil, increased accountability for costs in VBHC challenge the dominant business model of independent physician practices as organizations sought to have more control over independent doctors. This is similar to the US, where hospitals increasingly push for stronger physician-provider integration, resulting in salaried physician employment and/or separation and competition from specialized clinics (Casalino et al., 2008).

4.2.2. Need for a continual and active multi-stakeholder system-based alignment

Our study reinforces the importance of approaching VBHC as a complex system innovation (WEF, 2017), and not as single endeavors, starting to experiment with one component of VBHC, and seldom addressing VBHC from a system perspective (SBU, 2018). This is problematic because adoption by a single provider organization is challenging, if not impossible (Steenhuis et al., 2020). In the Brazilian case, providers and health plans were reluctant to renegotiate patient volumes and lose market segmentation. In Sweden, the region's care network reform created a chain of mutually dependent transformations. Over time, the misalignment between the hospital's organizational model, care production assignments, IT and data infrastructure, and the region's reimbursement system inevitably led to challenges and skepticism. Recognition of the need for aligning providers and payers for system-wide transformations is developing (EITHealth, 2020; NHS, 2015). For instance, EIT Health recently created a High Value Care Forum that will start funding VBHC initiatives with the requirement that

these are jointly developed by providers and payers.

These adoption patterns contrast with what could be expected given the different degrees of contextual alignment (EIU, 2016). Despite Sweden's world-leading position, strong media and stakeholder criticism diminished support for VBHC adoption (Paterlini, 2018). The characterization of outcomes availability turned out to be overly optimistic and shortcomings in many NQR in terms of patient-reported measurements limited meaningful evaluation (Sparring et al., 2018). Brazil began on the opposite end of the contextual alignment spectrum but, in the private sector, the enabling context for VBHC seems to have improved, with stronger stakeholder support, efforts for outcomes data standardization and pilots in new payment models. In August 2019, the National Agency of Supplementary Health invited insurance companies to recommend pilots for value-based reimbursement projects. This suggests that prerequisites are important, but not sufficient, and active and continual multi-stakeholder engagement (payers, universities, network providers, …) is needed to sustain positive feedback loops allowing VBHC to adapt, scale-up and spread in the new context, preventing it from fading into the background.

4.3. Methodological considerations

Analyzing VBHC through the lens of healthcare providers gives a narrow perspective over VBHC, even though we included several participants from payer organizations, and the research team has two researchers working in the Stockholm County Health System. it is important to remember that the results are faithful descriptions of the assertions of the different respondents, which differ from VBHC as a theoretical concept. Differences between the two cases in the positions of participants could influence the results; we had fewer system-level participants in the Swedish case. Media scrutiny could have influenced recollections. We tried to address this by including documents, and by drawing on the deep contextual understanding (20+ years) among members of our research group. As typical in case studies, transferability of the findings can be increased through additional perspectives (Yin, 2017). Specifically, those going more in-depth in the care delivery value chains could represent different adoption patterns.

5. Conclusion

Like learning to tango, the adoption and adaptation of VBHC involves balance, conversation, and time. Even with the best possible preconditions, 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) about the "why", "how", and "what", informed by aligning these answers with organizational business models. Adopters could then begin with the most highly aligned value strategies. This will take time, especially when an effective VBHC transformation seems to require a more systemic approach where stakeholders align on purpose and scope of the transformation. In the Argentinian tango, you can choose an open or the classic closed embrace. An open embrace between a health care organization and VBHC not only helps maintain perspective, but also makes it possible to compare with and learn from others dancing the same dance.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2021.114145.

Ethics approval and consent to participate

Participants received written information about the study when invited to participate and again just before the interview. It was explained that participation was voluntary and could be terminated at any time, and written informed consent was obtained from each participant. Interview transcriptions were kept confidential and the data, including illustrative quotations, are presented without revealing interviewees' identity. The study was approved by the Regional Ethical Review Board in Stockholm (2018/1139-31/5) and by the Brazilian Research Ethics' Committee (CAAE: 02451218.0.0000.0071; SGPP: 3424-18).

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