The Value-Focused Management Applied to Healthcare Organizations

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Abstract

This article will describe how the Value-Focused Management Model (VFM) is perceived in different literature references, evaluate what was the implementation status of the technique in healthcare organizations before the COVID-19 pandemic, and understand the impact it had on the road map of the healthcare transformation. Moreover, to better understand the perceived importance of the model by different entities, multiple real-case scenarios and surveys will be reviewed. The main theoretical foundation for the article will be the book "Focused Operations Management for Healthcare Organizations" by Boaz Ronen, Joseph S. Pliskin, and Shimeon Pass.

Keywords
Value-Focused Management, Healthcare, Value Creation, Patient Outcomes, Value-based Reimbursement.

1. Introduction
Healthcare is, arguably, the all-important segment that enabled the human society to evolve and grow at outstanding rates in the past few years, whilst also being a major revenue stream in countries where government-subsidized health is not provided. Nevertheless, as the COVID-19 pandemic proved, the amazing competence of the healthcare workforce along with its will, spirit of sacrifice, and resilience are, unfortunately, not sufficient to avoid severe complications when not paired with an equally exceptional management technique.

As it is widely known, many different approaches can be used when managing a healthcare system, yet this article will, as the title references, evaluate value-focused management and its application in healthcare organizations.

In a plain explanation, VFM provides a foundation for companies to achieve a sustainable and low-cost care environment, whilst giving customers the opportunity to flee from the antiquated fee-for-service approach, that only benefits the big players and places the patients at all kinds of financial risk.

Anyhow, a more thorough evaluation should be conducted to seek the viability of the value-focused management technique, assess potential benefits, and analyze real-world implementation drawbacks.

1.1 Objectives
The objective of this scientific article is to review multiple literature sources and supplementary documentation to provide a state-of-the-art overview of the research that has been conducted on the value-focused management in healthcare, whilst also referencing the strategic value drivers in such methodology, from different perspectives and reports. The VFM technique shall also be subject to a reality check, where its implementation prominence is reviewed both before and after the COVID-19 pandemic. Lastly, focus is placed on showcasing the possible improvements that VFM can bring to the future of healthcare, along with the tools that should be used and the governmental mindset that should be ingrained.

2. Literature Review
An array of different management approaches can be used to improve upon internal performance (Koller et al. 1994), such as continuous improvement techniques, total quality management, and kaizen events, yet these often fail in clarifying concrete performance measures and can deviate from the ultimate goal of value creation. Hence the

foundation of value-focused or value-based management (VFM or VBM). According to Koller et al. (1994), VBM provides a direct metric upon which companies can actually sustain their improvements: value.
On a general basis, VBM can be applied to several industry segments, and usually translates itself into improved economic performance, by providing decision-makers with the right tools and information to make the most value-creating decisions and therefore choose the maximum-value strategy (Koller et al. 1994). Not only that, but according to Koller et al. (1994), the aforementioned management processes and systems need to be coupled with a value-creation mindset, in which senior management should always behave in a manner that optimizes the value of their respective corporation, so a sustained organization enhancement can be achieved.

Implementation-wise, Koller et al. (1994) suggest that after the value mindset is embraced within the company, with financial tools like discounted cash flow value being used over traditional financial measures (often over-reliant on cost analysis), and with non-financial goals being addressed (such as customer and employee satisfaction) that bring more prosperity than one might expect, companies should pursue and evaluate their key value-drivers, establish new management processes, develop a winning strategy, set measurable targets, define action plans, measure performance, and, as a final step, design a compensation system to keep the workforce focused and motivated.

At last, successful VBM strategies require second-to-none management support, as any major organizational change does, to ensure the philosophy permeates throughout the entire organization (Koller et al. 1994). As a consequence, the full impact of this strategy and the prospects of value maximization it offers can only be achieved if managers embrace and defend the approach on a daily basis.

Moving to the HealthCare Infrastructure, a plethora of operation and management techniques can obviously be assigned to such a monumental revenue stream with almost infinite echelons, departments, organizations, specific needs, etc, yet focus will be placed on the value-focused management techniques applied to it.

According to Kaplan and Porter (2011), in 2011, 17% of the United States GDP was not sufficient to cover expenses in the country's healthcare system, and the trend was only one, rising costs. The reasoning behind such a trend was attributed not only to aging populations and the necessity for the development of treatments but also to perverse paying incentives, which focused too much on reimbursement for the number of procedures performed instead of actual outcomes achieved (Kaplan and Porter 2011). Even worse, organizations had no idea how much it cost to deliver patient care during the entire individual's healing cycle, leading to one of the most well know axiom – what is not measured, cannot be managed. As such, management of healthcare organizations has for long been "across-the-board" cuts, and whilst marginal savings can sometimes be achieved, this approach mainly led to poorer overall outcomes (Kaplan and Porter 2011).

Notwithstanding, the proper goal of any healthcare delivery system should be to improve the value delivered to its patients, so both outcomes and costs should be measured at the patient level and should encompass the care seeker's entire healing cycle (Kaplan and Porter 2011). Value in healthcare is defined as the capability an organization has to improve outcomes at similar costs, or to reduce the total costs whilst maintaining the same outcome level (Kaplan and Porter 2011).

Unfortunately, complex paths of care and fragmented health delivery truly complicated accurate cost measurements, with Kaplan and Porter (2011) even describing today's healthcare system as a highly customized job shop with a clear lack of standardization, and whilst costing systems were in place for individual departments and services, none of them offered a clear overview of resources used by a patient as the individual traversed through the system. Hence the adoption of the time-driven activity-based costing (TDABC), a VBM technique to estimate costs for each step along the path of each patient (Kaplan and Porter 2011) that works with two trivial parameters – the cost of each resource used per unit of time and quantity of time the patient spends with each resource.

As stated by Kaplan and Porter (2011), the introduction of TDABC in healthcare systems presented powerful new ways to improve processes and restructure care delivery, by capitalizing on previously hidden opportunities, some of them being: eliminating non-value-added processes, improving resource capacity, delivering the right processes at the right location, optimize the full cycle of care, and reinvent the reimbursement nature from fee-for-service payments to value-based reimbursement that cover the full care cycle.

Porter and Lee (2013) go even further upon such analysis, by stating that business as usual in healthcare was over and that it was time to apply a new fundamental strategy, one that revolved around the value-focused management concepts explained above, such as maximizing value for patients, achieving the best outcomes at the lowest possible cost, and shift focus from volume to quality of services provided. Moving from the fee-for-service toward value-based reimbursement is also a priority, due to severe political pressures to contain healthcare costs. Moreover, Porter and Lee (2013) present a strategic agenda to move from the traditional healthcare approaches to the highly desirable high-value healthcare delivery system (VBM), which include six mutually reinforcing and interdependent components that shall be explained later in the article.

Now that it is understood that implementing a VBM strategy is on the mind of nearly every healthcare organization in the United States (Stowell and Akerman 2015), one might reference why outcomes are one of the main mentioned topics throughout this analysis, and how important it is to have the ability to properly measure them.

- First of all, outcomes define the goals of an organization and guide the company into key differentiation strategies, this is, there are still few companies that make their explicit goal to deliver excellent outcomes (Stowell and Akerman 2015), instead, organizations are still tied to quality, research, or education values, which can be quite deceiving, and therefore healthcare infrastructures that measure and provide a clear and open report regarding their outcomes gain competitive advantage and additional trust by potential future patients.
- Outcomes also motivate clinicians to compare performance and learn from each other (Stowell and Akerman 2015) because by sharing information and making a comprehensive analysis of each other, different companies can find opportunities to improve from other's mistakes, thus rooting a truly competitive market that ultimately enhances quality for the patient.
- Outcomes highlight value-enhancing cost reduction (Stowell and Akerman 2015), this is since clinicians generally overestimate how much their care translates into benefits, many non-value decisions can be found within a particular clinician approach that is costly and has little impact on outcomes, so, by measuring outcomes, the cost can get under control as well by showcasing to clinicians, with grounded data, that some activities/services can be reduced or eliminated without jeopardizing outcomes.
- And at last, outcomes enable payment shifts from volume to results (Stowell and Akerman 2015), or, in other words, with the capability of measuring outcomes a company can then shift the paradigm of reimbursement from fee-for-service toward a pay-for-results philosophy (value-based payments), which is being pursued by several healthcare companies not only due to external pressures but also due to the fact a new market dynamic can be achieved with higher customer satisfaction levels and less overall costs to the organization, since readmissions and redundant healing steps are, for the most part, abolished. Even better, if a pay-for-results philosophy is to be implemented, patients will be the main winners, since any unexpected payments or hidden fees will cease to exist as the risk is pushed toward the care provider.

Addressing the VBM again, Teisberg et al. (2020) provides a comprehensive strategic framework for the value-based management implementation in healthcare organizations and reiterates the definition of value as the measured improvement in a person's health outcomes for the cost of achieving that improvement, to emphasize that the primary focus should be on improving patient outcomes rather than cutting on costs, to a greater extent stating that "descriptions of value-based healthcare that focus on cost reductions are incomplete […] if the real goal of value-based healthcare was cost reduction, pain killers and compassion would sufficient".

Even though Teisberg et al. (2020) are quick to reference that some might consider value-based management in healthcare as "a utopian vision" due to how much alignment needs to exist between several parties such as stakeholders, patients, providers, insurance companies, employers, and government organizations, Teisberg et al. (2020) defend that improving value by implementing VBM matters and goes on to explain that outcomes should be divided into three distinct terms – capability, comfort, and calm – to properly focus on the outcomes that matter the most to patients. Capability being the ability for patients to do every single activity that defines them as individuals and enables them to be themselves, comfort being the relief from physical and emotional suffering, and calm being the ability to live normally while getting care (Teisberg et al. 2020).

According to Teisberg et al. (2020), value-based healthcare is the bridge that will connect clinicians with their purpose as healers again and will also counter many clinician burnouts that stem from the fact such professionals now need to spend countless hours on tasks that do not impact their patients' health. Moreover, better outcomes will reduce hospital

costs for ongoing care, this is, by focusing on outcomes and value creation, the disease progression will be significantly reduced, driving down the need for more complex care in the future.

As such, value-focused management is presented as the path to improve the patient experience of care, improve the health of populations, improve clinician experience, and reduce the cost per capita of healthcare (Teisberg et al. 2020). This opportunity presents a rather unusual negative correlation between improvement and costs, that every healthcare organization shall seek in the near future.

The actual framework presented by Teisberg et al. (2020) is based on the premises aforementioned and, as stated by the authors, it is "not an unreachable utopian ideal" as other individuals might believe. The structure sustains itself on five main steps, which can be seen in Figure 1.

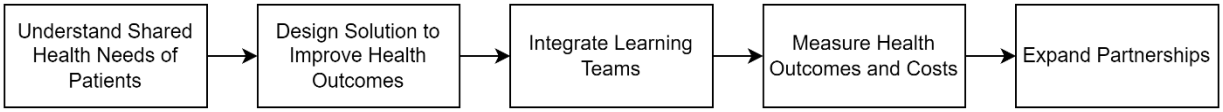

Figure 1. Strategic framework for value-focused management implementation in healthcare

With that said, and taking into account Figure 1, in order to pursue VBM implementation in healthcare, providers are firstly responsible for identifying and understanding groups of patients whose health and related circumstances are within a consistent set of needs. After that step, cross-functional teams design and deliver a solution to those needs with the respective comprehensive steps to follow to arrive at the desired outcome. Such teams shall be then tasked to measure meaningful health outcomes for each patient and also learn from such information to drive a continuous improvement philosophy to enhance care and efficiency. Lastly, as health outcomes start getting recognized, opportunities to serve more patients arise through expanded contracts (Teisberg et al. 2020).

Yet how do these concepts fair against the major theoretical basis used in the elaboration of this article? In the book written by Ronen et al. (2006) a major problem is posed by the authors, in which they state that from the managers' perspective it is rather difficult to initiate a process of value-enhancing in a healthcare system due to how difficult it is to prioritize a set of various possible improvements optimally: In a sense, the authors were deconstructing how complex healthcare systems truly are, and presenting the reader with the idea that, in fact, not only should patient outcomes increase but also costs of operation should follow the contrary pattern, nonetheless, pursuing such goals are far from being a trivial endeavor. As an example, one individual might think more value-added can be achieved by improving upon the emergency department of a hospital, whilst other managers might believe it is better to improve the operating rooms, and so forth, which in turn creates unwanted segregation between departments.

Hereinafter, Ronen et al. (2006) present a systematic approach to focus on value creation using non-financial activities such as strategic changes, structure changes, output increases, improvement of inventory levels, and improvement of information systems. A shift from the traditional *cost-accounting* methods (that lack a *global perspective*) is also key to avoiding inefficient use of resources, wasted time, low-value incentives, and missed profit opportunities.

Structure-wise, the value-focused management model depicted by Ronen et al. (2006) is deeply rooted in the knowledge property of Koller et al. (1994) and mainly serves as a guideline to help healthcare managers focus on places in which the potential for increasing organizational value is the greatest (Ronen et al. 2006). It follows five implementation steps – determine the goal, determine the performance measures, identify value drivers, decide how to improve the value drivers, and, at last, implement and control.

In essence, different from the VFM implementation philosophies in healthcare analyzed until now, which were mainly outcome-exclusive, Ronen et al. (2006) are keener on using a broader scope of improvement possibilities and showcasing how different approaches (that are in line with healthcare needs) and tools, such as SWOT analysis, Focused Current Reality Trees, and Global Performance Measures should be used to identify and choose different strategic value drivers – that might even be disconnected from direct patient outcome improvements. Subsequently, after the decisions to improve upon the recognized value drivers are concluded (using managerial techniques explained in the book that fall outside the scope of this article's analysis), Ronen et al. (2006) also emphasize the use of focusing

tables and focusing matrixes as a solution to the major complexity problem presented earlier. Due to the fact such tools have the capability to examine the value and difficulty that the implementation of every improvement proposal would bring/require, an adequate basis for optimal decision making can, on that account, be employed by managers. When it comes to putting theory into practice, several surveys and articles that evaluate the status of the value-focused management implementation in healthcare were reviewed, with the intent of exposing what has been the reality of such a management approach in the last few years and what have been the general thoughts about the methodology from the perspective of healthcare professionals, CEOs, and political forces.

In a 2017 report from Deloitte, a clear overwhelming belief stated by the surveyed CEOs was that the "Transition to value-based payments was slower than expected" (Burril and Kane 2017), mainly because providers were not ready to face the risks such reimbursement method would bring to a company's financial infrastructure. Nonetheless, Burril and Kane (2017) still had a belief that fee-for-service reimbursements would shift in the near future to value-based payments due to policies such as the *Medicare and CHIP Reauthorization Act of 2015* (MACRA) and although value-based reimbursement models were not gaining momentum as quickly as anticipated, many CEOs were preparing themselves for a future with greater emphasis on value-focused care

In accordance with Burril and Kane (2017), a major concern within the community was also the need to operate under two different payment systems – fee-for-service and value-focused care - at least during a transitory phase, thus having misaligned incentives that could heavily jeopardize internal operations. Moreover, CEOs expected the need to partner with third-party solutions and heavily invest in technology to stay connected through the full cycle of care of their patients, since healthcare organizations did not possess the resources nor the expertise to conduct such endeavors (Burril and Kane 2017). Differing financial incentives between parties, especially with physicians, were also a core problem that compromised the ability of CEOs to remodel the payment and the care delivery systems that have been in place for long-lasting years.

Nonetheless, Burril and Kane's (2017) report stated that tools and incentives were being put in place to stimulate physicians and also to help shift the paradigm to value-focused management. Some of them are, for example, positioning their organization in a risk-sharing model with payers, emphasizing patient quality, safety, and experience, investing in appropriate technology to enhance patient care, and creating a culture where patients had easy communication and access to physicians.

All things considered, the practical generalized idea regarding the VFM approach in healthcare, in 2017, was that organizations should have been preparing for its arrival, due to the fact the industry was clearly moving toward a path where health outcomes would soon be the only priority (Burril and Kane 2017). This meant creating partnerships, growing business, and putting in place incentives so physicians and other health professionals alike would embrace and willingly operate under the value-based care model (Burril and Kane 2017).

A couple of years later, according to Main et al. (2019), the main drivers of change from the CEOs perspective were (still) the shift in care settings, the transition to value-based payment methods, and gathering a greater base of proactive consumers, further enhancing the idea that the transition into VFM applied healthcare was harder than expected and slower than anticipated. So, contrary to what many studies predicted, the adoption rates of VFM techniques were significantly lower than forecasted.

Even though the aforementioned reimbursement method continued to be defended by Medicare and Medicaid Services (CMS) as the only "viable future", CEOs had already designed a more versatile and differentiated strategic playbook that involved many other value-added activities, which included institutional agility, fiscal fitness, consumer-centricity philosophies, adoption of next-gen technology, management of cognitive biases, management of capital investment, and others. Albeit the push toward value-focused management was still a major value driver for the future of healthcare, it was definitely not the only viable investment CEOs could pursue (Main et al. 2019).

In a way, according to Main et al. (2019), the unrelenting and ever-changing healthcare needs were making managing an increasingly dynamic process. As such, achieving near-term performance using aggressive investment approaches was becoming more feasible to guarantee companies would avoid losing their market share and emerge victorious against the fierce competition they faced. Trivially, such mentality had an impact on the VFM, which was becoming, in a sense, just one more possible technique out of a vast portfolio.

Following a similar thinking structure, conforming to Minemyer (2020), value-based models (in terms of both management and payments) were not going away any time soon, and should always be considered by healthcare organizations, primarily due to the fact the approach was a major policy cornerstone of both the Obama and Trump administrations. However, a focus on customer satisfaction and a consequent pursuit for a proactive and loyal consumer base would, as per Minemyer (2020) "set up organizations for success regardless of how the shift to value-based payments continues", therefore making it a more desirable investment from the companies' perspective, with fewer implementation risks than the VFM approach.

In another report from 2019, where healthcare executives provided their expectations for 2020 and beyond, the value-focused management implementation was not even directly mentioned ("What's coming for healthcare in 2020?" 2019). Instead, in this specific article, the CEOs surveyed stated a plethora of other future predictions for healthcare, such as creating a "zero-harm" environment (to pursue healthcare safety and quality and avoid major healthcare-acquired infections), applying a strategic investment to promote health equity and eliminate disparities, upgrading the therapeutical arsenal for depression, implementation of rules that mandate the share of real-world data between organizations (under a global norm) for optimized decision-making, better focus on the cost equation (which is the most similar approach stated that follow the concepts of VFM, explained before), and, finally, the implementation of technologically advanced home devices, which in turn will provide easier access to healthcare services by every patient ("What's coming for healthcare in 2020?" 2019).

Nonetheless, none of the CEOs were capable of predicting the worse, the soon-to-come globalized COVID-19 pandemic, which ended up deeply hurting any prospect of companies implementing new management techniques or investing in strategic value drivers, since the priority rapidly changed to "treat as many patients and save as many lives as possible". Yet, in hindsight, how did such a horrible disease, that changed the healthcare paradigm in a way not seen for many years, affected the implementation of the value-focused management?

According to sources, the number one problem in 2021 in healthcare was the personnel shortages, which happened as a reactive correlation to the skyrocketing levels of patient admissions that year. With financial challenges, which had been the major problem since 2004, falling to second place. Patient safety and quality were the third biggest concern for CEOs ("Top issues confronting hospitals in 2021" 2022). In fact, hospitals suffered so much from critical shortages of front-line staff that new redesigned strategies emerged, such as increasing compensation to increase staff retention, building staff resilience training and assistance programs, and exploring alternative models for healthcare that limit the work strain of the staff, which, for the most part, consumed a great part of the allocated money organizations had saved in the past to invest elsewhere ("Top issues confronting hospitals in 2021" 2022). A more comprehensive analysis of the issues surrounding healthcare in 2021, along with the major concerns that are allocated to the top-ranked issues shall be provided later in the article.

In a more recent statement, Khuntia (2022) presented the idea that healthcare systems were not prepared to embrace the shift to patient-centered care and value-focused management techniques yet, but that emerging from the pandemic provided the perfect conditions to invest in pursuing VFM. Many executives felt the healthcare system was unprepared to meet patient needs during the pandemic due to the system-centered mindset and the fee-for-service reimbursement techniques that were in place, and that the only way to actually improve upon the quality of care, the patient experience, and the cost situation, therefore avoiding the consequences felt during the pandemic, was to implement the value-focused approach.

As such, 3 main strategies started being employed by U.S healthcare systems to shift the paradigm to the VFM model of care, which were: empowering patients through digital health, providing value-based care around health rather than illness – preventive (or mitigation) techniques are usually more efficient than corrective (or contingent) techniques – and developing a cross-functional workforce to better serve diverse patient needs (Khuntia 2022).

Furthermore, additional sources also stated that the focus on sustainable value-focused care was renewed after the COVID-19 pandemic push towards the widespread vaccination. This was, as an analogy, one of the biggest examples of how a VFM model could work in healthcare. In this case, the major value driver was providing equal vaccination access to every single person, regardless of their background, and for free, with the hopes of improving the health outcomes only (Ide 2021). Since then, with the rate of transmissions lowering and the symptoms becoming milder, hospitals saved millions of dollars due to decreases in emergency admissions, by providing preventive, instead of corrective care, and pursuing better health outcomes rather than multiple care procedures. (Ide 2021).

In addition, Ide (2021) provides a tentative look into the future of VFM in healthcare, giving use to what was learned from the pandemic and to uncommon new approaches created to (successfully) combat the disease, which broke the status quo medicine was facing in the 21st century. Such a topic shall be discussed further in the article.

Still, in 2022, roadmap strategies were created with the intent of regrouping and refocusing on the long term, thus pursuing the transition to value-focused care (Comstock 2022). The implementation of the concept itself, along with its features was considered to be on the brink of a critical decision in 2022, yet major players still considered the value-based payment models as one of, if not the most, effective techniques to combat the rising costs of healthcare. Regarding the roadmap's core value drivers, emphasis was placed on acquiring long-term sustainability, constructing deeper collaborations, increasing access to minorities, and using data-sharing methods between organizations, in order to achieve a healthcare system with equitable outcomes through high-quality, affordable, and person-centered care (Comstock 2022).

According to Comstock (2022), the five strategic objectives in the roadmap are the following: Drive accountable care, advance health equity, support care innovations, improve access using affordability policies, and partner to achieve system transformation. Likewise, the topics will be thoroughly analyzed further along in the article.

Ultimately, as reported in 2022, the renewed rapid development of value-focused healthcare is expected to greatly contribute to market growth and to a decrease in the healthcare cost curve. Data from 2019 showed that providers who embraced value-based reimbursements experienced growths of more than 15%, due to the supreme quality offered, whilst using the system in a truly efficient manner, moreover with the commercial incentives across the USA being higher than ever before, the rapid expansion of the value-based healthcare is a grounded and powerful expectation for the years to come. Investment in infrastructure and bearing of technological risks are key drivers companies must attain to effectively manage patient data regarding healing cycle costs and outcome performance, these being the main characteristics on which the VFM approach is based, nonetheless results seem to be promising as the world moves towards a global healthcare system that is mainly concentrated on improving patients results. ("Value-Based Care Payment Global Market Report 2022" 2022).

3. Methodology and Data Collection

The research for the article began with the study of different methodologies that have been applied to healthcare organizations in the last decades to close the gap between healthcare operations and other industries as explained by Ronen et al. (2006). All these tools started to be considered in the healthcare industry with the goal of increasing the value of the organizations and implementing a value-focused management approach, as was not new to almost all manufacturing industries.

The impact and difficulty of implementing a new management approach in such an important industry motivated more research on the current situation of this transformation. By analyzing different articles published it was possible to understand that VBM was the path to be followed by healthcare organizations, however, by the end of 2019 there was still a long way to go to fully collect the benefits of the new approach. These findings raised two questions: 1) what was the impact of the COVID-19 pandemic on the transformation of the healthcare industry? 2) are the healthcare organizations now ready for the transformation?

Aiming to answer these questions, studies that provided key indicators of the management situation before the pandemic and in 2022 were reviewed. To retract the situation before the pandemic, Main et al. (2019) presented the results of a survey to 27 CEOs in the healthcare industry. In image 2 below are resumed the drivers of healthcare industry change and the impact that the interviewed CEOs attribute to each of them.

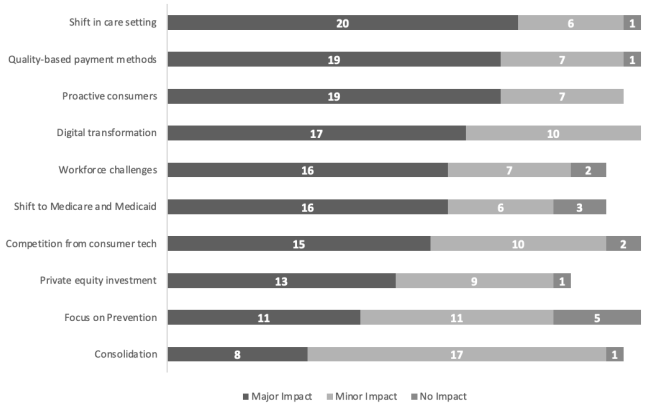

Figure 2. CEO ratings of drivers of healthcare industry change

Source: Adapted from Main et al. (2019)

On the other hand, to evaluate the current situation as the world tries to recover from the impact the pandemic had, table 1 resumes the results of the survey "*Top issues confronting hospitals in 2021"* published in February 2022 and compares them to other years. As the survey was conducted 310 CEOs ranked the issues the hospitals confronted in the past year, and the average of their rankings was used to order the issues, thus, the lowest number represents the major concern.

Table 1. CEO ratings of drivers of healthcare industry change

Issue	2021	2019	2018
Personnel shortages (all types, including physicians)	1.6	4.6	5.2
Financial challenges	4.1	2.7	2.8
Patient safety and quality	5.0	5.3	5.1
Behavioral health/addiction issues	5.4	5.0	5.3
Governmental mandates	5.4	5.2	5.1
Access to care	5.7	5.2	6.2
Patient satisfaction	6.1	5.9	6.1
Physician-hospital relations	7.8	6.3	6.6
Technology	8.1	7.1	7.7
Population health management	8.4	7.7	8.1
Reorganization (e.g., mergers, acquisitions, restructuring, partnerships)	9.4	8.1	8.3

Source: "Top issues confronting hospitals in 2021" 2022

4. Results and Discussion

The concept of value-based management is not new, and although it took some time to be applied to healthcare organizations the transition started more than a decade ago, as Kaplan and Porter (2011) mentioned, with some hospitals adopting a new approach to measure costs and outcomes.

However, after studying the changes that the U.S. healthcare system has been through in the last years, it is fair to say that it has not reached the expected performance levels and that the momentum of this transformation has been delayed as a result of the COVID-19 global pandemic. Having said that, this section will focus on analyzing what has changed and discuss a road map for the healthcare transformation in 2022 that will overcome the negative impact caused by the pandemic and take advantage of the positive development that was forced to happen.

As was discussed in the literature review section, in 2019 the benefits of the paradigm change in this industry were already proven and it was already on the agenda of the main hospitals. One can argue that the impact of the pandemic would have been reduced if this transformation was in a more advanced stage as one of the premises of VBM is that looking at the healing cycle instead of looking at each small step or service increases the efficiency of the existing resources, and thus it is possible to reduce the number of visits and the consequent risk of other infections. Nevertheless, what is important in establishing the road map for the years to come is the current state of the industry and the new tools that may help to change the paradigm.

The U.S. is now living a period of recovery from the pandemic that changed the modern world, and as the stage of the healthcare transformation is evaluated, new drivers are gaining importance and organizations are now heading toward the value-based care model 2.0. Ide (2022) states that "from these darkest of times comes to a renewed focus on health equity and sustainable value-based care". In January 202 an executive order was signed aiming to reduce the inequality whether it was geographic, technological, age, ethnic, or economically related, and to provide vaccination and healthcare access to everyone (Ide, 2022). Today, it is expected that these efforts are kept and even expanded at least until next year, which is an important step toward value-based care objectives as will be seen below.

One of the tools that were highly developed during the pandemic was telemedicine. Although the concept already existed, it had an exponential growth during the last two years as it helped to extend accessible and continuous healthcare to more and more people. As Ide (2022) stated "the pandemic highlighted the need for hybrid in-person and virtual models of care, and reignited calls for providers to be adequately compensated for these models" and "new models of care – such as hybrid (…) – offer comprehensive continuous care that will support greater equity while also making outcomes-focused care". Besides, Ide (2022) also recalls that "nearly half of the healthcare leaders said the pandemic would "propel the industry away from fee-for-service"". This proves that some of the impacts of the pandemic may help the industry to shift toward VBM, reinforcing that new momentum is gaining force this year.

This momentum can be expected to grow, as adding to the mentioned pressures introduced in these last two years there may also be government regulations that will enforce abandoning the fee-for-service approach. In 2021, the Biden administration was already studying the hypothesis of making value-based care payment models mandatory (King 2021). Such new regulations may be announced in a near future as the director of the Center for Medicare and Medicaid Innovation (CMMI), Liz Fowler, said that the organization is planning to publish new models that will incorporate the lessons learned in the last 10 years and will be more focused on the patient than the provider (King 2021).

Although some may think that this momentum will effectively change the system, Comstock (2022) states that "some experts believe that the concept and the practical features of value-based care are at a crossroads going into 2022, even though the payment models continue to be viewed as effective methods for addressing the rising costs of healthcare". This might raise a problem if the concept and practical features go through and the payments models are kept as they are as if these two perspectives are not aligned, the approach won't be effective and might even have a negative impact on performance.

As Khuntia (2022) said, "although health systems are up for patient-centered care, many miles to go before it is implemented". And for that reason, it is important to look at the road map for 2022 as a step in the direction of achieving a sustainable value-based care system and not as the final step toward this paradigm change.

Following this line, a roadmap for the current year may be outlined having as base five strategic objectives, published in the Innovation Center Strategy Refresh (Comstock 2022). These five objectives are listed below:

1. Drive accountable care – increasing the number of people taking advantage of the total cost of care
2. Advance health equity – reducing the inequalities present in society and providing healthcare to everyone
3. Support care innovations – setting targets that will help monitor the performance improvements
4. Improve access by addressing affordability – pursuing strategies to reduce redundancies in the system
5. Partner to achieve system transformation – aligning the priorities and policies between payers, providers, patients, and others

These objectives were recently published; however, Porter and Lee (2013) had already suggested a strategy that would fix the healthcare system, and although some years have passed, the value agenda they presented is still aligned with the objectives just mentioned. The six points mentioned in 2013 are listed below and the suggestions for which of

them will be evaluated considering the impact that the pandemic had, the current state of the industry, and the main concerns of the CEOs of the organizations.

1. Organize into integrated practice units (IPUs) – each IPU should be constituted by a cross-functional team that is specialized in the treatment of a certain condition. It should include clinical and non-clinical personnel and should be able to take care of the entire care cycle of a patient. This step is somewhat aligned with the fourth objective listed above, improving access by addressing affordability, as many examples showed that by using cross-functional teams the visits needed from a patient to get treated were reduced, and consequently were the final costs. Besides, considering the information contained in table 1, this change should be a top priority of the healthcare leaders. By creating cross-functional teams it is possible to increase the number of patients treated without increasing the resources, by increasing their efficiency. Considering that personnel shortages are now the issue that concerns most CEOs within the industry, an option might be to re-locate them to these new cross-functional teams and improve their capacity to treat patients. For example, Virginia Mason Spine Clinic increased the number of low back pain patients seen per year from 1,404 to 2,300 just by creating a dedicated IPU, and also decreased the amount of time and visits a patient needed to be treated by around 50%, which is a great increase in value from the patient's perspective.

2. Measure outcomes and costs for every patient – as Porter and Lee (2013) stated "the great majority of healthcare providers (and insurers) fail to track either outcomes or costs by medical condition for individual patients", and again, it can be aligned with one of the five objectives, this time number 3. The main difficulty faced when implementing such targets, is to choose the relevant ones, and, for the case of VBM, they should measure the outcome on the patient side. However, health organizations are still using a fee-for-service approach resulting in misleading measures that don't drive improvement as would be desired. A successful example of correctly measuring and sharing the outcomes for the patient is the Fertility Clinic Success Rate and Certification Act of 1992, that by demanding clinics to share relevant metrics with the Center for Disease Control, such as their live birth rates. In hindsight, data shows a big improvement in the success rates between 1997 and 2011. Sharing relevant performance measures is also aligned with objective number four, which suggests the creation of partnerships as a way to achieve a complete transformation and show a good impact of competitive markets on overall performance.

3. Move to bundled payments for care cycles – as said before, using the wrong performance measures will not drive system improvement, and fee-for-service is another proof of that. By applying such a type of payment, quantity is rewarded over quality and efficiency, thus, it is not aligned with the goal of creating value from a patient's perspective. Changing the paradigm to a bundle type of payment transfers the risk of avoidable complications, like post-surgery infections, to the provider, and gives it an incentive to actively avoid it, and consequently, the total costs will also be reduced. This is aligned with the first objective, which aims to have everyone involved to be accountable for the quality and total cost. Such an approach was proven effective for example when the Stockholm County Council implemented a similar program in 2009 for total hip and knee replacements, achieving lower costs and higher patient satisfaction.

4. Integrate care delivery across separate facilities – Porter and Lee (2013) highlighted that there are great improvement opportunities in centralizing systems and creating specialized units instead of duplicating the services in many locations. The data presented suggest that patients are willing to travel long distances to get treatment in a hospital that has higher success rates. COVID-19 pandemic probably can leave a positive impact on this specific change with the rapid growth of telemedicine options. A multisite health delivery organization can centralize a smaller number of specialties in each location and improve the success rates, this will attract patients even if they have to travel. Then, telemedicine can ease the continuous care, allowing remote and continuous follow-up and reducing the necessity for the long trips to a bare minimum. A good practice to implement this strategy might be to partner with smaller local providers that have the capacity to do some exams and then schedule a remote consultation with a physician to analyze the results.

5. Expand excellent services across geography – typically recognized healthcare providers serve their immediate geographic areas, but to increase value, a more inclusive area needs to be served. Again, it can be related to another objective already mentioned, advancing health equity, as one of the inequalities commonly found in society is related to rural areas. Porter and Lee (2013) suggested different ways to expand healthcare services, like the creation of satellite sites for certain specialties that would be supervised by a certain IPU and have regular personnel rotations. In the current days, as already said before, there are even more opportunities to achieve geographic expansion by putting in use telemedicine platforms and services.

6. Build an enabling information technology platform – the last component of the described value agenda is supposed to act as a support for the other five. It means creating an IT system that shares information between departments and between organizations in order to gather all the information of a certain patient rather than have the information split by each service provided. To properly work, there is a need to create a common language between them and to include all types of relevant data, so that it can be shared and used between all of the departments and involved entities, streamlining communication, and driving performance improvement. This can be achieved by standardizing templates along with the IPU teams and having a system architecture that allows easy data extraction. Such systems also ease objective number five, creating partnerships between involved entities, as it allows easy communication of results and performance measures.

Having looked at all the value agenda points is possible to understand that they are all related and essential for a successful industry transformation. It is also important to highlight that the transformation is more likely to be successful if there are government pressures. If a single healthcare organization, even if a big one, tries to transform the whole internal structure to a VBM approach, it would not be aligned with the current industry measures. So, if pressure comes from above, in this case, governmental organizations, the change will be for all, providers and payers, and the performance measures would be comparable. Besides, it was proved that by creating relevant performance measures and sharing them between organizations (points 2 and 6) the general performance will improve, being this a direct and known consequence of a competitive market. In the end, one can say that a competitive market is what is required to properly add value from a patient's perspective.

5. Conclusion

After reviewing the current models of healthcare, the trends, and some of the thoughts shared by industry leaders, is fair to say that there is still a long way to go to collect all the benefits that come from a value-based care system. Although this path was designed and started to be pursued a long time ago, different circumstances, such as the COVID-19 pandemic, had impacted this transformation and delayed its implementation.

Now, in the recovery from the pandemic, the U.S. health system has a great opportunity to actively change its approach. The industry CEOs have shown concerns about different issues and admitted that personnel shortages and financial challenges are on top of the list of issues to be addressed.

Luckily, both these issues can be, at least partially, solved by reorganizing the organizational structure and adopting cross-functional teams, and by implementing an outcome-based costing model. The research presented showed successful cases for both of these suggestions and strengthened the hypothesis that this is the way to go. However, the most critical point is that the pressure toward such an industry transformation must be applied by governmental and regulatory agencies, as the old models still in place don't leave much space for providers and payers to change and still comply with their legal obligations.

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References

Burril, S., and Kane, A., *2017 survey of US Hospital CEOS: Deloitte Us*, Deloitte United States, 2017, available: https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/health-system-ceos.html, accessed on May 5, 2022.

Comstock, T., *Your value-based care roadmap for 2022*, Elation Health, 2022, available: https://www.elationhealth.com/blog/independent-primary-care-blog/your-value-based-care-roadmap-for-2022/, accessed on May 09, 2022.

Ide, L., *Health equity and value-based care 2.0 to take center stage in 2022*, Medical Economics, 2021, available: https://www.medicaleconomics.com/view/health-equity-and-value-based-care-2-0-to-take-center-stage-in-2022, accessed on May 09, 2022.

Kaplan, R., and Porter, M., *The big idea: How to solve the cost crisis in healthcare*, Harvard Business Review, 2011, available: https://hbr.org/2011/09/how-to-solve-the-cost-crisis-in-health-care, accessed on May 02, 2022.

Khuntia, J., *Health systems aren't ready for shift to patient-centered care, CEO survey from CU Denver finds*, CU Denver News, 2022, available: https://news.ucdenver.edu/health-systems-arent-ready-for-shift-to-patient-centered-care-ceo-survey-from-cu-denver-finds/, accessed on May 08, 2022.

King, R., *CMMI director: Expect more mandatory value-based care payment models,* Fierce Healthcare, 2021, available: https://www.fiercehealthcare.com/payer/cmmi-director-expect-more-mandatory-value-based-care-payment-models, accessed on May 20, 2022.

Koller, T., Copeland, T., Murrin, J., and Kooler, T., What is value-based management, in *Valuation: Measuring and managing the value of companies*, 2nd edition, Wiley, 1994.

Main, M., Schwartz, M., and Gerhardt, W., *Findings from the Deloitte 2019 Healthcare CEO perspectives study*, Deloitte Insights, 2019, available: https://www2.deloitte.com/us/en/insights/industry/health-care/health-care-industry-leaders-insights.html, accessed on May 05, 2022.

Minemyer, P., *Healthcare CEOS expected more progress on value-based care: Survey,* Fierce Healthcare, 2020, available: https://www.fiercehealthcare.com/hospitals-health-systems/healthcare-ceos-expected-more-progress-value-based-care-survey, accessed on May 06, 2022.

Porter, M., and Lee, T., *The strategy that Will Fix Healthcare*, Harvard Business Review, 2013, available: https://hbr.org/2013/10/the-strategy-that-will-fix-health-care, accessed on May 03, 2022

Ronen, B., Pliskin, J., and Pass, S., *Focused Operations Management for Health Services Organizations*, 1st edition, Jossey-Bass, 2006.

Stowell, C., and Akerman, C., *Better Value in healthcare requires focusing on outcomes*, Harvard Business Review, 2015, available: https://hbr.org/2015/09/better-value-in-health-care-requires-focusing-on-outcomes, accessed on May 03, 2022.

Teisberg, E., Wallace, S., and O'Hara, S., Defining and implementing value-based healthcare, *Academic Medicine*, vol. *95*, no. 5, pp. 682–685, 2020

Top issues confronting hospitals in 2021, American College of Healthcare Executives, 2022, available: https://www.ache.org/learning-center/research/about-the-field/top-issues-confronting-hospitals/top-issues-confronting-hospitals-in-2021, accessed on May 07, 2022.

Value Based Care Payment Global Market Report 2022, 2022, available: https://www.globenewswire.com/news-release/2022/02/11/2383730/0/en/Value-Based-Care-Payment-Global-Market-Report-2022.html, accessed on May 10, 2022.

What's coming for healthcare in 2020?, Fierce Healthcare, 2019, available: https://www.fiercehealthcare.com/special-reports/what-s-coming-for-healthcare-2020-health-executives-weigh, accessed on May 06, 2022.

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