



TRANSITIONING TO HIGH-VALUE HEALTH SYSTEMS IN G20+ COUNTRIES

PREPARED BY

HEALTH SYSTEMS INNOVATION LAB AT HARVARD UNIVERSITY
IN COLLABORATION WITH THE GLOBAL INNOVATION HUB FOR
IMPROVING VALUE IN HEALTH



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About this Report

This Report, *Transitioning to High-Value Health Systems in G20+ Countries*, was developed under the guidance of Professor Rifat Atun, Professor of Global Health Systems at Harvard University and Director of the Health Systems Innovation Lab, and implemented by a team consisting of Dr Che L. Reddy, Associate Director *Health Systems Innovation Lab, Harvard University* and Johnattan Garcia Ruiz, Senior Associate, *Health Systems Innovation Lab, Harvard University*, with the support of Dr Bryan Tan, a Visiting Scientist at *Health Systems Innovation Lab, Harvard University*. The ideas, insights, and frameworks in this study are drawn from earlier research, publications, and collaborative initiatives led by Professor Rifat Atun at the Health System Innovation Lab at Harvard University.

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Executive Summary

This report highlights and studies a major trend already underway in most health systems: the imperative to achieve better health outcomes and curb rising healthcare costs. Among G20+ nations, the major challenges that confront health systems and which drive this shift include, among others, unsustainable cost increases, rising citizen demand for health services, poor uptake of innovations, widening disparities in access to individual and public health services, and worsening inequalities in health outcomes.

As a result, many G20+ countries seek to transform their health systems to deliver both ‘value for money and value for many’. However, to date, most initiatives designed to achieve this objective have occurred at the departmental or organizational level and have yet to improve the performance of health systems as a whole to achieve large-scale population-level impact.

This study adopts a systems lens to explore how G20+ countries are embracing a value orientation and the policies, programs, innovations, and institutional arrangements they are introducing to improve the efficiency, effectiveness, equity, and responsiveness of health services, and thereby create value at the system level.

The Health Systems Innovation Lab at Harvard University (HSIL) has developed the Harvard High-Value Health System Model (HVHS) that draws upon nearly three decades of health systems research, engagement with large global health initiatives, and empirical data to analyze and characterize the shift underway from a systems perspective. The HVHS model consists of 10 interdependent components that include (I) digital data systems, (II) analytics, (III) cost measurement systems, (IV) outcomes measurement systems, (V) benchmarking, (VI) integrated care pathways with bundled services, (VII) value-based payment models, (VIII) value-based procurement, (IX) integrated provider networks, and (X) strategic change and innovation ecosystems. The study finds that while all countries appear to be embracing some of the 10 components, no single country has yet to advance decisively in all components and to the fullest extent, to achieve the HVHS transition.

This study applies the HSIL framework to examine the progress of G20+ countries in transitioning to a HVHS, identify areas for improvement, and share best practices to accelerate progress. The research team surveyed experts, conducted interviews, and performed desk research to gather data on the progress of G20+ countries in relation to each component.

The study found that while G20+ countries are certainly progressing towards the HVHS model, the level of progress in each of the 10 components varies substantially across countries. For each component, we ascertain whether a country has demonstrated major, moderate, or some progress that could benefit from accelerated progression.

The components in which countries are experiencing major progress are digital data and strategic change programs. Meanwhile, the components related to analytics and cost and measurement systems registered the moderate progress. The components of value-based payment models and value-based procurement represent areas in which accelerated progression is needed. Most countries have established national policies on health data ownership and usage, and healthcare providers are widely utilizing digital data systems. However, there is still an opportunity to accelerate the use of existing data systems and deploy analytics at scale to improve policy and practice to create greater value. Additionally, less than 50% of the countries studied have established performance datasets that enable comparisons by regions or providers. The analysis also revealed that the countries studied have made slower progress in other areas, such as aligning financial incentives and establishing systems for regular measurement of costs and outcomes. Nonetheless, the study identified multiple examples of valuable initiatives that could inspire other governments to focus on specific components to improve and accelerate their transition to HVHS.

We discuss three strategies that G20+ countries could pursue when transitioning to the HVHS model, and provide examples, namely: (I) Extension: extending *scope*—from one to multiple HVHS components—followed by expansion of *scale*—from a small initiative to a health-system wide intervention—; (II) Expansion: expanding scale followed by extension of scope, and; (III) Transformation: a hybrid approach that simultaneously

combines extension with expansion with the introduction of system level transformations. While most countries appear to follow the expansion and extension strategies, fewer embark on a transformational approach.

In pursuing these strategies, countries should invest in five critical enablers that could help accelerate the transition to the HVHS Model:

- **Development of a National HVHS Transition Strategy (NHTS):** high-level strategic documents that recognize commitment to the HVHS model and align a nation's vision for its health system transformation with national political, economic, and social objectives.
- **Leadership:** the demonstration of distributed leadership across all major stakeholders involved in health systems instead of the zero-sum game that currently characterizes it.
- **Financing:** expanded fiscal space and innovative financing measures to invest in NHTS and potentially transformative demonstration projects.
- **Global benchmarking and cross-learning:** the development of a global HVHS data set and case study library to understand better health system transition in G20+ countries and promote cross-learning about what works and what does not among G20+ nations.
- **Innovation:** the creation of an enabling ecosystem that promotes the design, introduction, and scale-up of value-based innovations in health systems and system level receptivity to innovation uptake and diffusion.

The transition to a high-value health system is a critical goal for all G20+ countries to optimize health system functions and deliver high-value health services to citizens. The findings of this study provide valuable information to inform this transition. We propose that the G20+ countries conduct this survey annually to provide ongoing information about the group's evolution in the path of a value-based health system. There is valuable experience among the group of G20+ countries in different components that should encourage cooperation and cross-learning initiatives to achieve a faster transition to a HVHS.

Introduction

This report examines a major shift underway in G20+ health systems: a transition to a high-value health system model. G20+ countries share several persistent challenges that have necessitated this shift, including, among others, unsustainable cost increases in their health systems, rising demand for health services, poor uptake of innovations, widening disparities in access to individual and public health services, and worsening inequalities in health outcomes.

The effectiveness, efficiency, equity, and responsiveness of health services delivered by health systems in G20+ countries vary tremendously, and the way they create value differs. Countries vary substantially in the levels of health system costs and outcomes achieved. Health system transformation was inevitable.

While the COVID-19 pandemic exacerbated these challenges, it has also accelerated the pace of system change by elevating the salience of health in government policies and the public discourse, promoting the uptake of innovation, and encouraging investment in health systems.

The rising costs without a commensurate increase in outcomes and the widening inequalities have prompted G20+ countries to adopt a ‘value-based perspective’ in health systems to transition to high-value health systems by simultaneously improving the effectiveness, efficiency, equity, and responsiveness of public health and individual health services provided to achieve greater ‘value for money and value for many’.

During the G20 Saudi Presidency in 2020, the G20 Health Working Group discussed and elaborated on the priority topic of “Improving Value of Health Systems.”¹ In the G20 Health Ministers’ Declaration in 2020, Improving Value in Health Systems was identified as a priority for G20 countries and beyond.

¹ G20 Research Group, University of Toronto, “G20 Health Ministers Declaration. Riyadh, Saudi Arabia, Statement Published on November 19, 2020.”

In the Ministerial Declaration, the G20 Ministers of Health recognized “the importance of accelerating learning and the adoption, measurement, and evaluation of different approaches to improve value in countries at all stages of development”² and supported “the establishment of a Global Innovation Hub for Improving Value in Health (the Hub), with a five-year mandate.”³

The G20 Ministerial Declaration of Health Ministers also acknowledged the success of the G20 side event: Accelerating Transformation Towards Sustainable Health System through Value-Based Healthcare in Riyadh in January 2020. The Ministerial Declaration singled out the event as a good example of G20 activity demonstrating the utility of a forum to exchange practical knowledge and experiences among G20 Member States, international organizations, experts, and industry.

The Ministerial Declaration called for The Hub to “make best use of its members’ capabilities and link with relevant existing platforms in a collaborative manner to facilitate sharing of best practices and lessons learned; expand successful initiatives; design new approaches to improve value in health and enhance cross-learning among participating countries and stakeholders.”⁴

In November 20-21, 2020, the G20 Leaders Declaration stated: “Well-functioning, value-based, inclusive, and resilient health systems are critical to achieving Universal Health Coverage (UHC). We reconfirm the importance of UHC financing in developing countries. We welcome the establishment of the Global Innovation Hub for Improving Value in Health...”⁵

This study, led by the Health System Innovation Lab at Harvard University, contributes to the rich program of work of The Hub by examining the progress to date in G20+ countries

² G20 Research Group, University of Toronto.

³ G20 Research Group, University of Toronto.

⁴ G20 Research Group, University of Toronto.

⁵ G20 Research Group, University of Toronto, “G20 Riyadh Leaders’ Declaration.”

in their journeys to transition to high-value health systems and by synthesizing the lessons learned.

The Health System Innovation Lab at Harvard University (HSIL) has been at the forefront of research that examines why some health systems perform better than others and explores the design, implementation, and scale-up of innovations and solutions to achieve high-value health systems (HVHS).

In 2022, the HSIL and the Organisation for Economic Co-operation and Development (OECD) published a report on "The State of Cardiovascular Disease in G20+ Countries," which found that Cardiovascular Disease (CVD) is the leading cause of mortality and morbidity in 40% of the G20+ countries and the second leading cause in 55% of countries.⁶ Despite this overt failure of health systems to manage CVD, data needed to examine and compare health system performance concerning CVD is lacking, highlighting a debt in leadership, policy, and implementation that impedes countries from developing high-value health systems with regard to CVD, the major driver of premature death and mortality in G20+ countries.

This study builds on three decades of research and engagement, exploring the behavior, dynamics, and performance of health systems in more than 30 countries, and the adoption and diffusion of complex innovations (such as value-based health care—VBHC) in health systems. We apply these principles, lessons, and concepts to examine how health systems in G20+ countries are transitioning to the HVHS model and discuss how the transition process could be accelerated.

This report examines innovative policies, programs, and interventions developed by G20+ countries and suggests strategies necessary to scale them up. The report builds upon former contributions to analytical work in relation to value-based health care and high-value health systems to produce new evidence to inform policymakers, healthcare

⁶ T Rittiphairoj et al., "The State of Cardiovascular Disease in G20+ Countries." HSIL, Harvard University, Boston, 2022.

providers, and other stakeholders to improve the health systems in G20+ countries and beyond.

This report is organized into four sections. Section One introduces the high-value health system model and discusses other approaches to analyze VBHC at the health system level. Section Two presents the methodology used. Section Three elaborates on the experience of G20+ country health systems and specifically reviews the design and implementation of various value-based innovations in G20+ country health systems, and explores how countries have embraced various approaches in transitioning to the HVHS model. Section Four discusses potential pathways to transition to HVHS, explores three strategies that G20+ countries, and discusses five enablers that need to be in place to enable the transition to HVHS.

Section 1. Conceptual Model

This study is underpinned by the Harvard High-Value Health Systems Model (HVHS). The Harvard HVHS model consists of 10 interdependent and mutually reinforcing design components (Figure 1) that characterize the ongoing transition in health systems towards a ‘value’ predominant system orientation. The HVHS model is detailed in *Building a High-Value Health System, Transition to Health Systems: A Primer* and a position paper on Rethinking Health System Design: *Towards a High-Value Health System Model*.⁷

Figure 1: 10 Components of the Harvard High-Value Health System Model



Source: Authors

⁷ Atun, “Transition to High Value Health Systems: A Primer”; Reddy, Garcia, and Atun, “Rethinking Transition to Sustainability: A Health Systems Approach. Position Paper.”

The conceptual model builds on and represents an evolution of several critical HSIL frameworks, notably the HSIL Health System Framework and HSIL Complex Healthcare Innovation Framework – both of which have been used to examine health system performance and analyze the adoption and diffusion of innovations in health systems and have been applied in more than 30 countries. This prior knowledge and empirical evidence have helped to understand better how health systems behave in different countries, the major forces that influence their performance, and the policies, programs, institutional arrangements, and interventions designed to enhance system performance and ultimately inform the Harvard HVHS model.

The development of the conceptual model has been highly influenced by HSIL's direct involvement in major health system reforms, large global health initiatives, and various healthcare innovations, which have provided valuable perspectives on why value-based approaches are essential and how value could be created in health systems. Finally, the development of the model was also informed by a literature review of published and grey literature to identify and examine similar frameworks that examine value-based healthcare approaches from a health system perspective.

The HVHS conceptual model was introduced and appraised in two different group settings to review and test each component and its various sub-components. First, the model was used during formal engagement with the G20 group of countries leading to the 2020 G20 Leaders' Summit, in which the G20 Health Ministers' Declaration of 2020 was adopted. The second major audience in which the model was demonstrated was among a select group of senior health officials who attended Harvard University for an executive education course in 2022 on 'High-Value Surgical Systems'.

1.1 The Harvard High-Value Health System Model

Redesigning Health Systems for Value: The Creation of High-Value Health Systems

High-value health systems are designed to achieve impact at the system level and contribute towards achieving broader economic, political, and sociocultural outcomes. Three major principles differentiate high-value health systems from existing health systems to enable “value for money and value for many”:

- **Value:** We define a high-value health service as any health service at the population level or individual level delivered effectively, efficiently, responsively, and equitably in a health system. The core tenet of a high-value health system is to enable people to attain their highest level of health, capabilities, and to participate actively in their societies, unencumbered by limitations in health. Emphasis is on empowering people to understand and actively manage their wellbeing and to deliver high-value health services using existing resources efficiently.
- **Systems Intelligence:** Health systems can no longer be static and rigid social structures in a constantly evolving environment; high-value health systems use existing data and technology efficiently to exhibit resilience and expand system reach to enable communities to adopt healthy practices in their daily life.
- **Context-driven:** High-value health systems reflect the core values and beliefs of the countries in which they are situated. Thus, the high-value health system promotes well-being and delivers responsive health services that aligns with the characteristics of the population it serves, and designs and implements innovations at scale to achieve system ambitions.

The high-value health system constitutes 10 interdependent and mutually reinforcing design components, each acting on specific functions of health systems (Table 1): (I) digital data systems, (II) analytics, (III) cost measurement systems, (IV) outcomes measurement systems, (V) benchmarking, (VI) integrated care pathways with bundled services, (VII) value-based payment models, (VIII) value-based procurement, (IX) integrated provider networks, and (X) strategic change and innovation ecosystems. In our view, countries that invest in these 10 design components will unlock far greater efficiency, responsiveness, equity, and effectiveness in their health systems over the long-term than

countries that do not. We summarize each component and outline its constituent value-creating elements:

The first HVHS component, **(I) Digital data systems**, involves the design and development of platforms that enable the reporting, collection, and pooling of relevant healthcare data for all major actors within the system. There are four major value-enhancing measures within this component:

- Digital data platforms: to enable collection, reporting, and pooling of digital data via electronic medical records for health, wellness, and across the care continuum;
- Standardization: shared definitions, formats, and language;
- Integrated data sets: the ability to pool and link different data forms (text, waveform, image, among others) from multiple sources;
- Modular architecture: architecture that provides for agility and flexible design and scale-up;
- Interoperability: enabling seamless data exchange between various data sources and data systems.

(II) Analytics entails using digital data systems to deploy advanced data science capabilities on relevant health data. This includes the ability to combine, harness, and analyze health data relating to population characteristics, interventions, cost, process, utilization, and outcomes, using machine learning, artificial intelligence, and advanced simulation modeling to enhance healthcare service delivery, resource allocation, and policy development, and inform innovation. Analytics must also enable sharing of relevant analyses to inform health decisions to certain authorities whose mandate is to improve health system performance.

(III) Cost measurement systems entail efforts to harmonize cost definition and measurement, so providers, payers, researchers, and policymakers use an established and common framework and process to measure the cost of care and illness and activities in health systems. This includes automating and seamlessly extracting measured cost data from digital data systems to enable value-based payment and labeling or data tagging in terms of time and location to ascertain the time and resources allocated to

different health services provided. Cost measurement systems must also enable comparative benchmarking to provide a holistic view of healthcare costs among and between providers, payers, and patients.

(IV) Outcome Measurement Systems involve the development of harmonized indicators, measurement, and comparative benchmarking of outcomes relating to the delivery of health services (coverage, utilization, activities, process, and outcomes achieved) and Patient Related Outcome Measures (PROMs) and Patient-Related Experience Measures (PREMs).

(V) Benchmarking entails the collection and analysis of data that enables comparison over time in a unit (longitudinal benchmarking) or across various units of salience (comparative benchmarking) in terms of level (primary healthcare vs public healthcare), department (surgery vs medical), the reason for accessing care (condition, disease, or intervention) and jurisdictions (national vs subnational).

The sixth HVHS component, integrated pathways with bundled services, includes five value-enhancing measures:

- Pathways: evidenced-based standardization of processes for healthcare services and actions aimed at promoting health;
- Analysis of variation: real-time analysis of variation of the care delivered compared to the pathway in use;
- Bundling: intervention bundling across the care continuum to promote improved efficiency, effectiveness, responsiveness, and equity of the care delivered and to improve outcomes;
- Stratification: categorizing individuals and patients into subgroups – for example, categorized by level of risk, patient characteristics, or disease complexity – to enable dedicated care pathways with targeted interventions for each subgroup.

Seventh, value-based payment models relate to the implementation of value-based remuneration so that provider payments are based on improving outcomes and reducing the cost of care delivered and the value achieved across the entire care cycle. Value-

based payment models also encompass risk/reward alignment and the introduction of incentives and payments for the outcomes achieved.

Value-based procurement involves the development of a value orientation and shift from purchasing inputs or “things” to paying for an overall outcome. Like value-based payment models, this component also includes risk/reward alignment, particularly sharing of risk and reward between vendors and providers. Pooled purchasing arrangements and supply chain optimization enable improved efficiency of the health system procurement process. Supply chain optimization includes the integration of procurement within supply chain management systems, including inventory optimization, underpinned by a digital data system to track the movement of health goods along its value chain.

Integrated provider networks include operational integration and structural integration aspects. Operational integration involves the suitable collaboration required for bundling healthcare service provision using shared integrated care pathways across several providers and levels. Structural integration among providers involves mergers or affiliation agreements to develop integrated care networks that enable seamless care across a pathway.

The final HVHS component, strategic change and innovation ecosystem, consists of two primary value-enhancing measures that should underpin every value-based intervention:

- Strategic public-private partnerships leadership: top-level commitment to high-value health system transformation within government, with strong collaborative working arrangement with sub-national levels and the private sector that promotes trust.
- Innovation ecosystem: the institutionalization of push and pull strategies and policy changes that promote ‘emergent’ and ‘driven’ innovation to encourage innovation design, development, implementation, and scale-up to transform a health system for value creation.

Section 2. Methodology

2.1 Gathering Study Information

The study used a combination of surveys, interviews, and desk research to generate relevant information in relation to the HVHS framework and enable data triangulation from multiple sources to understand concepts and empirical data from multiple perspectives.

The research team used the desk review to inform the development of an integrated dataset to ascertain the presence of each of the 10 HVHS components and their constituent value-enhancing measures in selected G20+ countries and examine country transition to the HVHS model. The dataset consisted of 19 qualitative indicators for the 10 components. Each of the value-enhancing measures were assessed using ascending numbered scores ranging between 0-1, 0-2, and 0-3, with 1, 2, or 3 the highest number for each indicator representing advanced progression and 0 indicating that prioritization and progress is needed (Table 1) (Appendix A presents the specific questions for each component, indicator, and answer choices).

Table 1. Scoring of each component and value-enhancing measures

Component	Indicator	Unit
C1. Digital Data	I1. Adoptability	0-3
	I2. Policy	0-1
	I3. Unification	0-2
C2. Analytics	I1. Real time analytics	0-2
	I2. Citizen empowerment	0-2
C3. Cost measurement systems	I1. Cost reporting	0-2
	I2. Cost integration	0-3
	I3. Cost measurement incentives	0-1
C4. Outcome measurement systems	I1. Outcome reporting	0-3
	I2. Outcome integration	0-3
	I3. Outcome measurement incentives	0-1
C5. Performance benchmarking	I1. Performance dataset	0-3
	I2. Performance benchmarking	0-3
C6. Integrated care pathways with bundled services	I1. Integrated care	0-3

Component	Indicator	Unit
C7. Value-based payment models	I1. VB payment implementation	0-2
	I2. VB risk adjustment	0-1
C8. Value-based procurement	I1. VB procurement implementation	0.2
C9. Integrated provider networks	I1. Organization	0-2
C10. Strategic change program	I1. Strategy from a system perspective	0-2

Source: Authors

Given that each component had a different range for scoring (0-1; 0-2; or 0-3) with four potential scores (0, 1, 2, and 3), the research team translated each range into a 1-3 standardized scale with three categories represented by numbers and colors to compare the progression for each HVHS component across countries. Level 1 (grey) represents some progress, Level 2 (teal) moderate progress, and Level 3 (black) represents major progress (Table 2). This system enabled the research team to develop a ‘heat map’ to compare the survey results by country and indicator.

Table 2. Scoring each HVHS Component

Score	Indicator
1	Some progress
2	Moderate progress
3	Major progress

Source: Authors

The HSIL and The Hub shared study participation invitations between November 2022 and February 2023 with different contacts from G20+ members and guests. Members could participate in the study by either filling an online survey, granting the research team a 45-minute interview, or referring the research team to another expert who could participate.

The dataset was translated into an online survey and shared with participants using Qualtrics XM Platform, which contained four parts (Figure 2): Part I included 19 multiple-choice questions that explored the same number of indicators proposed to determine the progress on the 10 components of a high-value health system. Part II included 11 multiple-choice questions related to exploring the systems’ receptivity to transition and Part III included two multiple-choice questions concerning health system resilience. Each

question included a textbox where the participants could share details to explain their answers or provide general comments related to the question. The survey was open from November 2022 to February 2023.

When the survey was provided to country experts from select G20+ countries, respondents selected an option that reflected the extent of progress concerning each of the 10 components. Some respondents used the text boxes in each question to provide additional details, and further explain their answer choices. The research team used these comments to probe answers in more detail during the interviews. The team also conducted desk reviews to explore responses in more depth, particularly in relation to the case studies identified.

Figure 2. Snapshot of the survey



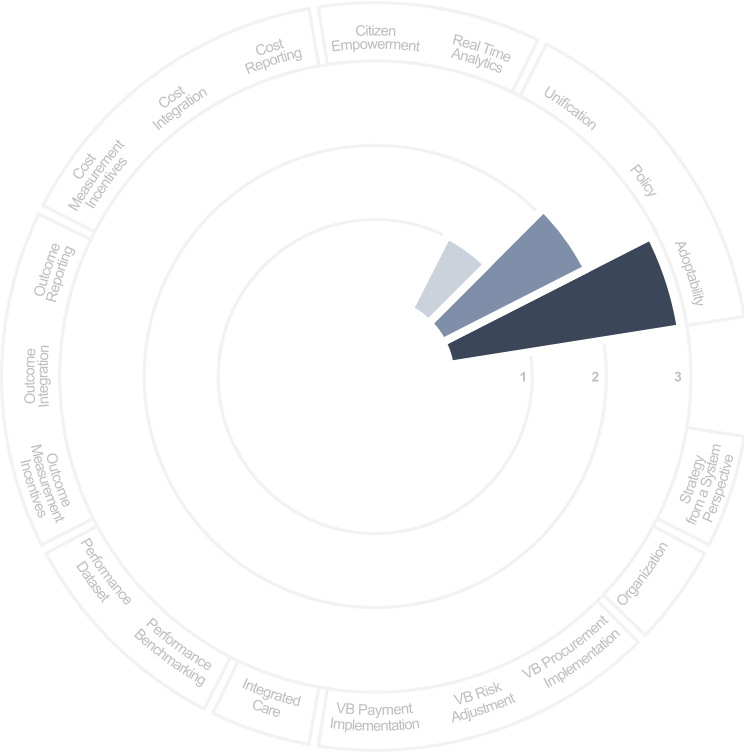
Source: Authors

The surveys were followed up with semi-structured interviews (Appendix B) with the same country experts that complemented the survey and literature reviews on specific case studies in each of the G20+ countries. The interviews were conducted via Microsoft

Teams and Zoom, to discuss the countries' experience with their progress towards a high-value health system. Interviews were led by one of the study team of researchers using an interview guide with 12 questions following a semi-structured format. Every participant was provided with a brief study description and asked permission to record the interview solely for notetaking purposes. Each interview was targeted to last at least 45 minutes or until most questions were answered. During the interviews, it was possible to examine the design and implementation of the identified case studies from the perspective of country experts that had intimate knowledge about their development, challenges to adoption and current strategic decisions influencing scale-up.

Findings from the desk research, surveys, and interviews were synthesized into country profiles that summarize G20+ country transition to the HVHS model and provide a case study from an initiative related to one or multiple HVHS components. Each country profile incorporates a radial chart that summarizes the findings in the standardized scoring system (Figure 3).

Figure 3. Radial chart sample using the standardized scoring system



Source: Authors

2.2 Differences and similarities between the existing frameworks and the HSIL approach

The overarching difference between the HSIL framework and other comparable frameworks that explore value-based initiatives at the global level is that it is anchored in a health systems mode of analysis. By contrast, frameworks that have examined VBHC have typically taken a more institutional view of progress in achieving VBHC (See Appendix B for a summary of The Economist Intelligence Unit’s “Value-based healthcare: A Global Assessment” report (EIU),⁸ the EIT Health “Implementing Value-Based Health Care in Europe: Handbook for Pioneers” report (EIT),⁹ and The Boston Consulting Group value-based healthcare maturity-assessment (BCG) framework¹⁰).

A systems view provides a macro lens to assess how value-based approaches at lower levels of the system (e.g., at departmental, institutional, or network level) could be expanded in scale and scope to transition to a high-value health system that benefits populations at scale and offers the possibility to analyze how broad contextual factors accelerate or hinder the adoption and diffusion of VBHC in health systems. We compare the frameworks used by Harvard HSIL with those developed by the EIU, EIT, and BCG. Table 3 presents a summary table comparing the methodology used, scoring method, country, and analytic focus across the various complementary approaches.

Table 3: Comparison of Harvard Health System Innovation Lab Method with other major frameworks

Framework	HSIL (2023)	EIU (2016)	EIT (2020)	BCG (2011)
Methodology	Interviews, survey, case studies, desk research	Interviews, survey, case studies, desk research	Interviews, case studies, desk research	Interviews, case studies, desk research
Scoring method	Local expert appreciation	Internal research team	No scoring	Internal research team
Country focus	G20+	Custom group	Europe	Custom group
Analysis focus	System view	Contextual focus	Case focus	Technical capacity focus

⁸ The Economist Intelligence Unit, “Value-Based Healthcare: A Global Assessment.”

⁹ EIT Health, “Implementing Value-Based Health Care in Europe: Handbook for Pioneers.”

¹⁰ Soderlund et al., “Progress Toward Value-Based Health Care. Lessons from 12 Countries.”

The EIU report provides a comprehensive set of indicators to evaluate the status of the enabling environment to accelerate the implementation of value-based health care in different countries. Both the EIU and HSIL studies include frameworks with similar qualitative analytical indicators, particularly in policy, cost and outcomes measurements, integrated pathways of care, and payments. The assessment of each indicator is also similar. The Harvard HSIL study explores more elements related to digital health, analytics, performance benchmarking, and strategic change. At the same time, the EIU report assesses distinct features such as education and training, HTA, and evidence-based guidelines. Both frameworks use similar background indicators but utilize different sources for these indicators. The methodology is also different, as the Harvard HSIL study uses a survey to capture local assessments of the countries' high-value health system transition that were complemented with desk research and interviews, while the EIU team assessed each indicator based on primary research based on interviews and health policy and literature analysis. The two studies also differ from each other in the grading approach. The EIU report provides a scores for each country and groups them according to their overall score across four categories (low, moderate, high, and very high), while the Harvard HSIL study highlights progression across countries and outlines areas to be improved without a comparative score.

The EIT Health report offers a comprehensive roadmap for organizations or health systems interested in adopting a value-based healthcare strategy. The main difference with the Harvard HSIL study is that the EIT Health framework was designed not to evaluate countries but to illustrate the different steps required in a VBHC strategy based on successful cases from diverse organizations. It does not include scores—instead, the report presents experiences under the five dimensions described in the VBHC Implementation Matrix. Nevertheless, there are notable similarities. Both studies highlight the importance of assessing the organizations' capacities related to digital data, analytics, cost and outcomes measurements, benchmarking, and internal strategies to enable a transformation.

Regarding the BCG study, both HSIL and BCG studies highlight the role of data in guiding health systems to incorporate a value-based approach in their DNA. In the BCG study, numerous elements related to payments between agents, outcomes, and quality measurements are present in the two dimensions and the four critical factors proposed in its framework. The report is presented as a web-based text that includes valuable exhibits, but the presentation limits the user's ability to explore the scores in the multiple criteria analyzed. The Harvard HSIL study provides country profiles for each G20+ member so that countries have a more detailed presentation of the survey results in relation to each of the 10 components complemented by brief case studies highlighting achievements in the 10 HVHS components.

2.3 Benchmarking and Analysis

While our framework enables benchmarking of country transition to the High-Value Health System model, this study does not include a comparative numerical ranking of the countries' status regarding the 10 components of a high-value health system. Instead, it is designed to provide a landscape review for each country on the level of progress concerning each of the 10 HVHS components to provide a snapshot of where countries are in their journey of transitioning to a high-value health system in G20+ nations. The result of the analysis is presented in the subsequent section.

Section 3: G20+ Transition to the HVHS Model

In this section, we review the major trends G20+ country transition to the Harvard HVHS model, drawing on results from a range of sources, including surveys, interviews, and desk reviews. This exercise enabled the research team to examine the progress regarding each of the 10 HVHS components. The analysis by country and component provides valuable information about the areas in which G20+ countries could focus efforts to continue their path towards achieving high-value health systems.

The first part of this section provides an overview of the major research findings about G20+ country transition concerning each of the 10 HVHS components, which shed light on the key trends that have emerged from our analysis. In part two, we provide detailed profiles of each participating G20+ country. These profiles offer a more in-depth description of the research findings and provide an opportunity to explore how each country is shifting to the HVHS model based on its unique contextual situation and priorities. By presenting these profiles alongside the broader analysis, the research aims to provide both an analytic view of the major trends across G20+ countries regarding their transition to the HVHS model, together with more detailed insights into each country's particular experience to understand the current landscape as well as the challenges and opportunities that lie ahead.

3.1 Major findings across select G20 Health Systems

The Harvard HVHS Framework serves as a model to analyze the progress of countries in their transition to health systems that create 'value for money and value for many'. This study constitutes the first step to engage countries more closely and follow up the progress of different member and guest countries comprising the G20 group. The survey was designed to capture experts' perception about their country's progress in each of the 10 components and highlight the areas in which they have excelled and those in which there is opportunity for progress and innovation (Table 4).

Table 4: Overview of country transition to the HVHS Model: Analysis of the 10 components of a HVHS by levels of progress (1-3)

Component	Indicator	ARG	AUS	FRA	IDN	IND	ITA	KOR	RUS	SAU	SGP	TUR	USA
C1. Digital Data	I1. Adoptability	3	3	3	3	3	3	3	3	3	3	3	3
	I2. Policy	3	3	3	3	3	3	3	3	3	3	3	3
	I3. Unification	2	2	3	2	3	2	1	2	1	3	3	1
C2. Analytics	I1. Real time analytics	3	2	3	3	3	3	3	2	3	3	3	3
	I2. Citizen empowerment	2	3	3	3	3	2	2	2	1	3	3	3
C3. Cost measurement systems	I1. Cost reporting	2	3	3	2	3	3	2	2	2	3	2	3
	I2. Cost integration	2	2	3	3	3	3	3	2	2	3	1	1
	I3. Cost measurement incentives	1	3	3	3	2	3	3	3	3	3	1	1
C4. Outcome measurement systems	I1. Outcome reporting	2	3	2	3	3	2	2	2	2	2	3	2
	I2. Outcome integration	2	2	3	3	3	3	3	2	1	3	3	1
	I3. Outcome measurement incentives	3	3	3	3	3	3	1	3	1	3	3	1
C5. Performance benchmarking	I1. Performance dataset	2	3	3	3	3	3	3	2	1	2	2	1
	I2. Performance benchmarking	1	3	3	3	3	1	3	2	1	2	2	1
C6. Integrated care pathways with bundled services	I1. Integrated care	2	2	3	2	3	3	1	1	2	3	3	2
C7. Value-based payment models	I1. VB payment implementation	1	3	1	3	3	3	2	1	1	3	1	3
	I2. VB risk adjustment	1	1	1	1	3	3	3	1	1	1	1	3
C8. Value-based procurement	I1. VB procurement implementation	1	3	1	2	3	3	1	2	2	3	2	1
C9. Integrated provider networks	I1. Organization	2	2	3	3	3	2	1	1	1	3	2	2
C10. Strategic change program	I1. Strategy from a system perspective	3	2	3	3	3	2	3	3	3	3	2	3

Source: Authors

The analysis of progress concerning the digital data component revealed that most healthcare providers in every country are utilizing digital data systems. Respondents suggested that most healthcare providers in their countries routinely use digital data systems. Moreover, every participant country has achieved a national policy detailing the ownership and usage of health data. France, Singapore, and Turkey have made advanced progress towards a unified national health record system mainly contested by the fragmentation of the different providers and levels of care in each health system.

Regarding the analytics component, we found that most countries have taken necessary steps, but major opportunities remain to use existing data systems and deploy analytics at scale. Several ministries of health have created dedicated entities to monitor and improve critical health system performance in real time. However, in terms of the citizen empowerment indicator, only some countries have made the prices and outcomes of healthcare goods and services transparent for public scrutiny. It is important that the government and civil society equally use the analytical capacities.

Concerning cost measurement systems component, countries like Australia, India, France, Italy, Singapore, and the United States have achieved advanced progress by mandating cost data collection by healthcare providers across their integrated care pathways. Eight countries in the group are making major progress in the cost integration indicator by having healthcare providers collect cost data in their electronic health record systems (although, these efforts might be different among providers given the enormous challenge of achieving a unified health record). Nevertheless, healthcare providers must have integrated digital health records across the care continuum to report cost data along the entire integrated care pathway.

This research found that at least half of the participating countries have made progress regarding the outcome measurement system component. Multiple governments in the study have implemented strategies to enable providers to report outcomes data and integrate outcomes into electronic health record systems, but there is still a need to develop integrated digital health records that allow providers to report outcomes along the entire integrated care pathway. Moreover, in most countries that participated in this

study, major payers do not report health outcomes that adjust for patient risk. India, Indonesia and Turkey made major progress in building registries incorporating outcomes indicators across the integrated care pathway.

Concerning the performance benchmarking component, we found that less than 50% of the countries analyzed have established performance datasets that enable comparisons by regions or providers. Some countries like Australia, France, Indonesia and Korea had made great progress in building their benchmarking systems, while others have yet to start implementing them into their health systems. The positive strides in the digital data component will provide a solid base for other G20+ countries to adopt performance benchmarking capabilities.

There are major differences in progress concerning the integrated care pathways component, with only India, France, Italy, Singapore, and Turkey having providers bundling services for more than 10 conditions. In contrast, others have no providers bundling services at the medical condition level. In most cases, the integration occurs in clusters of providers or specific geographic regions.

And while some countries have begun to implement examples of value-based payment models, the fee-for-service model still predominates in half of the participating countries where major health system payers need to utilize payment models emphasizing value with risk-reward alignment. In India, Italy, Korea, and the United States, major payers report health outcomes adjusting for patient risk.

Regarding the value-based procurement component, Italy and Singapore are leading the participating group by having major payors implementing value-based procurement practices. Most countries have an explicit national plan or policy to incorporate outcomes into procurement processes, but they still need to be operational. The G20 group could benefit from accelerating and scaling up value-based procurement initiatives.

France, Indonesia, and Singapore also led the findings on the integrated provider networks component by fostering integration among providers to facilitate healthcare services through the care cycle. Argentina, Italy, Turkey, and the US have an explicit

national or regional plan, policy, or strategic document to reorganize delivery around the patient journey, but they are not yet operational.

Nine of the countries participating have established entities to lead health system transformations. A dedicated entity is important to implement a strategy that enables an orderly transition to a high-value health system with full government support through national policies and political commitments.

Most of the G20+ countries that participated in this first review are making progress from a system level in relation to the 10 components constituting the High-Value Health System framework. Nevertheless, there are major opportunities for each country to accelerate progress and learn from the valuable experience among the G20+ nations across different components that should encourage cooperation and cross-learning initiatives.

3.2 Country profiles

Argentina



Progress to date

Argentina has been making strides in improving its digital health system, which serves as a foundation for further enhancements in other components of the health system.¹¹ The Ministry of Health's National Strategy of Digital Health 2018–2024 aims to develop interoperable information systems that connect different levels of care and territories.¹² During the COVID-19 pandemic, progress in data integration facilitated real-time analytics that informed decision-making in the health system. Argentina is also advancing in unifying electronic health records for patients, fostering a more transparent and accessible health system.¹³

¹¹ Amaya, “Un paraguas normativo para el desarrollo de la salud digital.”

¹² Ministerio de Salud y Desarrollo Social, República Argentina, “Estrategia Nacional de Salud Digital 2018-2024.”

¹³ Ministerio de Salud y Desarrollo Social, República Argentina, “Historia de Salud Integrada.”

Persisting challenges

Despite some progress, the Argentinian health system faces multiple challenges in its transformation into a high-value health system. The survey results show slow progress in five indicators, with particular difficulties in benchmarking and value-based payment and procurement components. Fragmented data systems have historically posed obstacles in organizing services effectively.

Major opportunities

To further improve the Argentinian health system, the country should focus on integrating care in the patient care pathway and implementing value-based payment and procurement models. Drawing from examples where countries have integrated information on costs and outcomes into electronic medical records, Argentina should advance in collecting outcomes data to inform both citizens and providers about the effects of the services they receive.

By incorporating innovation in payment agreements using risk adjustments, the country can generate value in the services acquired by both the public and private sectors. With the support of the central government, these transformations can lead to a more efficient, effective, and equitable health system.

Case Study: Building a National Digital Health Network in Argentina

The Ministry of Health in Argentina aimed to improve patient experiences with universal healthcare by creating a national digital health network. Its existing databases were built on slow legacy solutions with monolithic applications that could not be upgraded. This made it difficult to establish the necessary IT infrastructure for the network.

To advance in its plans around digital transformation, the Argentinian government partnered with Red Hat, a subsidiary of IBM, which provides open-source software

products.¹⁴ By leveraging online scheduling systems, telemedicine, and health interoperability standards, the Ministry expected to support care centers in securely accessing data from various providers to get a complete view of a patient's health history.

Red Hat provided container and microservices technology that enabled the Ministry to respond quickly when the system for reporting diseases experienced a 1,500% increase in transaction volume—more than 10 million reports—in just the first month of the pandemic.¹⁵ Additionally, Red Hat OpenShift was used to create a central panel for tracking related data, which was provided by and shared with the national and provincial governments to inform critical public health decisions.¹⁶

Since 2018, more than 6 million patients from the country's 24 provinces have been registered in the national digital health network.¹⁷

¹⁴ Rodriguez, "Ministerio de Salud de Argentina construye red nacional de datos digitales con Red Hat."

¹⁵ Red Hat, "Argentine Ministry of Health Tracks COVID-19 Data with Central, Scalable Platform."

¹⁶ Red Hat, "Argentine Ministry of Health Builds National Digital Data Network."

¹⁷ Red Hat.

Australia



Progress to date

Australia has taken important steps to advance in multiple components of a high-value health system, particularly on digital health, cost and outcome reporting, performance benchmarking and value-based payment and procurement. The country has worked diligently to improve its data integration within the health system, with a strong focus on transactional data and outcome analysis at the episode level. The Independent Health and Aged Care Pricing Authority–IHACPA recently launched a national benchmarking portal that aggregates such data to evaluate hospital performances.¹⁸ The portal's design is set to get even better with the planned incorporation of safety and quality metrics. This analytical depth will further enhance hospital performance evaluations.

There's a strong emphasis on activity-based funding and its relationship with clinical variation in Australia. Using the national benchmarking platforms, the health system has

¹⁸ Independent Health and Aged Care Pricing Authority–IHACPA, “National Benchmarking Portal | IHACPA.”

been instrumental in identifying unwarranted clinical variations, a crucial step towards value-based healthcare. Australia's attempt to integrate care pathways, particularly in acute care settings like cancer care, has shown significant promise, thanks to multidisciplinary approaches.

Persisting challenges

Despite the remarkable progress, Australia's healthcare system faces numerous challenges. One of the key challenges is achieving a unified national health record system. Each Australian state currently maintains its own data and analysis platforms, which poses a significant hurdle in terms of data integration. The lack of a universally adopted health record system makes linking data from different sources challenging. This fragmentation often necessitates the use of probabilistic matching to interpret and link the diverse data points.

In addition, primary care does not reflect a similar level of integration as seen in acute care. The predominant fee-for-service system disincentivizes providers from offering a diversified array of services, leading to a shortfall that negatively affects patients, especially those without private health insurance.

Major opportunities

With its strong focus on data and the future of healthcare, Australia has several opportunities to further improve its health system. The main opportunity lies in the integration of a unified benchmarking system. A unified system could standardize analytical capabilities across territories, allow states with limited resources to analyze data more effectively, and provide hospital workers, clinicians, and health information managers access to national data sets.

Another significant opportunity is the integration of care pathways in primary care. This integration can be facilitated by shifting away from the current fee-for-service system, instead of moving towards more value-based payment and procurement models. By taking advantage of these opportunities and focusing on strategic change and innovation, Australia can lead the way in developing a high-value health system.

Case Study: The National Benchmarking Portal for promoting cost transparency in the Australian health system

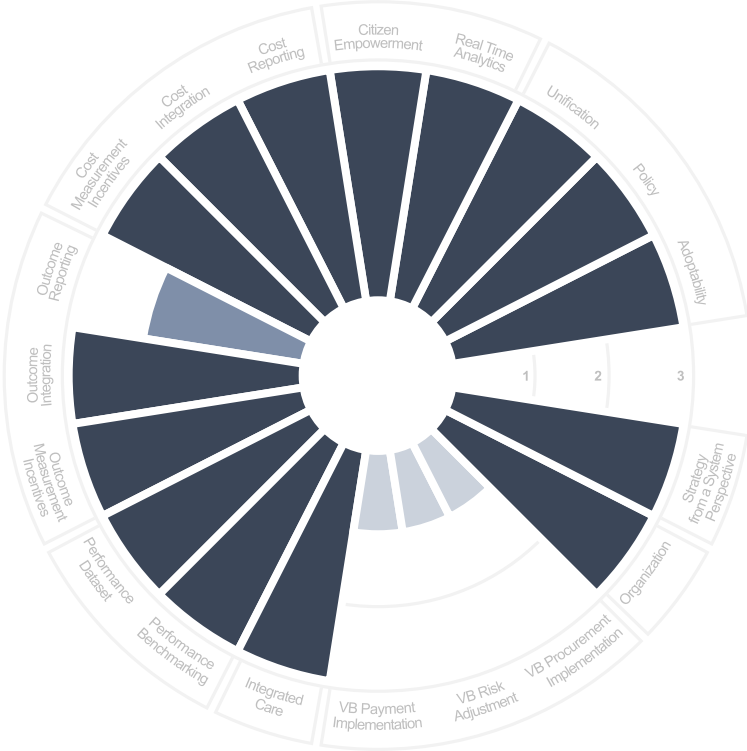
The Independent Health and Aged Care Pricing Authority (IHACPA) has developed a novel tool known as the National Benchmarking Portal (NBP), a web-based application that houses data collected between 2017-18 and 2020-21 and presents it to a wide array of users, from clinicians and hospital managers to researchers and the general public.

The NBP offers insight into public hospital cost data, focusing on three main areas: Cost per National Weighted Activity Unit, Hospital Acquired Complications, and Avoidable Hospital Readmissions. Each area comes with its own dashboards—three for each—that users can explore to understand an overview or delve into finer details. The initiative has managed to gain notable recognition, being awarded the 2022 Celebrating Smart Uses of Public Data Award at the Qlik ANZ Health & Public Sector Digital Transformation Awards.

Despite its achievements, the portal does not attempt to be an all-encompassing tool. For instance, it does not include private hospitals or primary care and out-of-hospital care. It is more of a focused resource that seeks to complement other public reporting tools and platforms, such as the ones managed by the Australian Institute of Health and Welfare.

The NBP represents a noteworthy effort to leverage data for improved transparency and policymaking in healthcare. Its evolving nature, apparent in the planned inclusion of new dashboards on quality and safety measures, is an indicator of its commitment to support and promote a value-based decision-making in the country.

France



Progress to date

France has made progress in seven of the 10 HVHS components according to the survey. The country has advanced in transforming its digital data and analytics components by establishing detailed and goal-oriented national policies, such as the "Data 2021-2024" strategy of the French National Authority for Health and the recently proposed Digital Health Roadmap 2023-2027 by the Agence du Numérique en Santé, the French eHealth Agency.¹⁹

One notable initiative is Mon Espace Santé, a digital platform that provides patients with access to their health records, medical history, test results, vaccination history, and other relevant health information.²⁰ Patients can connect with healthcare providers and access

¹⁹ Haute Autorité de Santé, "La Stratégie Données 2021-2024 de La HAS"; Agence du Numérique en Santé, "Présentation du projet Feuille de route du numérique en santé 2023 - 2027."
²⁰ Mon espace santé, "Le Service Public Pour Gérer Sa Santé. Vous Avez La Main Sur Votre Santé."

educational resources, enabling them to take an active role in managing their health. The platform aims to streamline healthcare delivery, improve access to healthcare services, and reduce the burden on healthcare providers.

France's health system is recognized for its emphasis on universal access to care and primary healthcare. Patients seeking both general practitioners and specialists have access to integrated care pathways. Additionally, the country has made strides in developing cost measurement systems, including registries that incorporate cost indicators for multiple diseases. For example, L'Assurance Maladie, the French Health Insurance Agency, keeps records of beneficiaries diagnosed with any of 30 chronic conditions by regions and departments, including information about medicines and devices provided by the social insurance.²¹

Persisting challenges

Despite the progress, the survey highlights the opportunity for France to incorporate value-based payment and procurement models. While some organizations, like UniHA and Resah, have explored this approach on a smaller scale in relation to hospital procurements, the model has not been widely adopted by other relevant payers in the country.²²

Major opportunities

To further enhance its health system, France should focus on expanding the use of value-based payment and procurement models. By learning from the experiences of organizations like UniHA and Resah, the country can promote a more efficient and value-driven health system. Integrating these models into the wider health system can complement France's commitment to universal access to care, further improving the overall quality and effectiveness of healthcare delivery. Additionally, the survey results suggest that there is potential for improvement in having payors request mandatory cost

²¹ Assurance Maladie, "Tableaux statistiques."

²² EIT Health, "Implementing Value-Based Health Care in Europe: Handbook for Pioneers."

data across the integrated care pathway and providers collecting cost data within EHRs, as well as establishing a performance dataset with benchmarking capabilities.

Case study: Digital collection of PROMs in a private hospital

The Institut Ophtalmologique Sourdille Atlantique is a highly esteemed private hospital located in Nantes, France, known for its expertise in the diagnosis and treatment of various eye diseases, including cataract surgery, the most performed surgical procedure in the country. The hospital is one of the leading health centers that have implemented a digital innovation to enhance patient care and optimize their processes, specifically the collection of Patient Reported Outcome Measures (PROMs) using notepads before consultation.²³

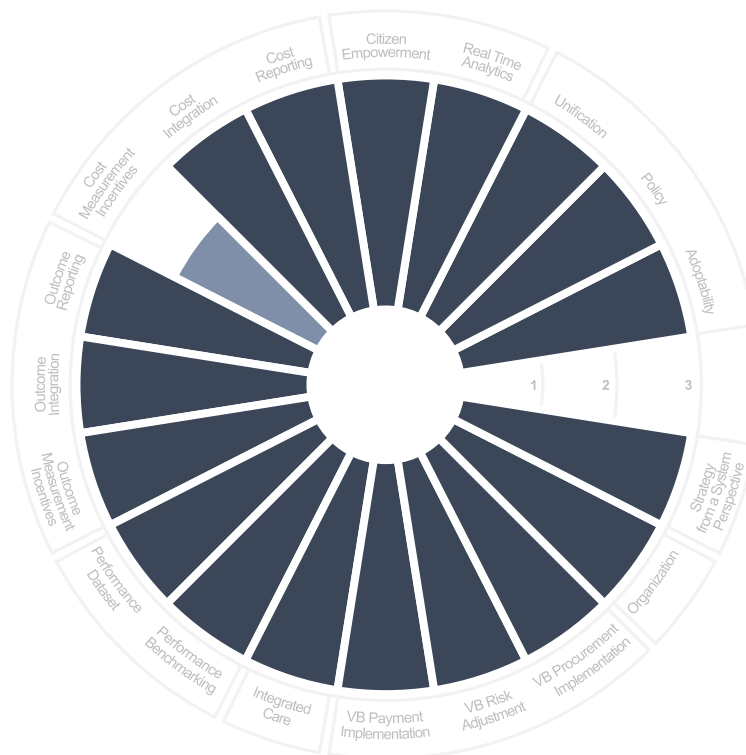
The introduction of Catquest-9SF, a specific questionnaire that measures visual disability on an interval scale, has allowed the hospital to adopt an ergonomic approach that eliminates the need for data transfer from paper to digital records. The data is seamlessly transferred to the patient's electronic medical record, enhancing accuracy, efficiency, and analysis.²⁴

This digital innovation is a vital component of the hospital's mission to move towards a value-based health system. It emphasizes the importance of patient involvement in clinical decision-making, enabling clinical practitioners to assess the value of healthcare provided to their patients. The digital collection of PROMs is a testament to the hospital's commitment to providing high-quality, patient-centered care while improving its operational efficiency.

²³ Katz et al., "Validity of the French Version of Catquest-9SF and Use of an Electronic Notepad for Entering Patient-Reported Outcome Measures."

²⁴ Katz et al.

India



Progress to date

India has embraced the digital revolution in healthcare, especially following the COVID-19 pandemic, and the results have made great impact in its road towards a High-Value Health System. The Ministry of Health and Family Welfare introduced the Telemedicine Practice Guidelines in March 2020, providing the regulatory framework needed to encourage digital access to care.²⁵ The government has also been investing in technology advancement and digitization in healthcare through the Ayushman Bharat Digital Mission, which includes digital registries of healthcare service providers and healthcare facilities, a unique health identity, and a consent framework.²⁶

Other initiatives that have contributed to the strong progression in most of the components of the High-Value Health system are the cost and outcome reporting, the value-based procurement and payment models and the definition of integrated pathways of care. For

²⁵ Damodharan et al., “Telemedicine Practice Guidelines of India, 2020.”

²⁶ National Health Authority of India, “Ayushman Bharat Digital Mission Components.”

instance, in 2020 the World Bank highlighted the role of the Odisha State Medical Corporation in the procurement of essential supplies that allowed providers to face the pandemic by facilitating expedite purchases without sacrificing transparency.²⁷ Most recently, the National Health Authority introduced a new payment model for hospitals participating in the scheme Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) which welcomes a value-based model focused on outcomes using five performance indicators: “1. Beneficiary Satisfaction; 2. Hospital Readmission Rate; 3. The extent of Out-of-Pocket Expenditure; 4. Confirmed Grievances and 5. Improvement in-patient’s Health-Related Quality of Life.”²⁸

Persisting challenges

Despite these strides, India's healthcare system faces significant challenges. Access to quality healthcare services is not uniform across the country, with rural and remote regions being particularly underserved. Infrastructure constraints, including a lack of trained healthcare professionals and adequately equipped healthcare facilities, pose significant challenges. There is also the need for robust laws to protect digital data, especially in the context of electronic health records. The proposed Digital Information Security in Healthcare Act (DISHA) is still awaiting implementation.

Major opportunities

India's digital healthcare landscape presents numerous opportunities to keep expanding the actions around the ten components of a high-value health system. The wide-scale adoption of innovative technologies and models will facilitate the expansion of a value-based health system in India. The ongoing digital transformation of the healthcare sector also presents an opportunity to build on the existing digital health infrastructure to create integrated care pathways, develop value-based payment models, and foster an innovation ecosystem for continuous improvement and advancement in healthcare.

²⁷ “How Indian State of Odisha Is Using Efficient Procurement to Combat COVID-19.”

²⁸ Ministry of Health and Family Welfare, India, “National Health Authority (NHA) Introduces New System to Measure and Grade Performance of Hospitals Empaneled under Ayushman Bharat PM-JAY Scheme.”

Case Study: Revolutionizing Primary Healthcare through the National Telemedicine Service in India

The National Telemedicine Service, eSanjeevani, is a notable digital health initiative by India's Ministry of Health and Family Welfare. It serves as a comprehensive telemedicine platform, aiming to bridge the gap in access to healthcare services, particularly in rural and remote areas.

Through eSanjeevani, approximately 120 million people have accessed healthcare remotely. The service operates using a combination of hub and spoke models, facilitated by over 116,400 Health & Wellness Centres and 15,800 hubs. The platform enables provider-to-provider and provider-to-patient consultations, with over 234,000 health workers, doctors, specialists, and super specialists onboarded and trained.

One significant contribution of eSanjeevani is the increased accessibility to healthcare. It allows individuals, regardless of their geographical location, to consult with healthcare providers remotely, helping to overcome traditional barriers to healthcare access. The platform's design also promotes efficient utilization of healthcare resources, potentially aiding in the resolution of resource scarcity in certain areas.

Moreover, eSanjeevani integrates electronic health records (EHRs), streamlining health information management. This feature enhances the continuity of care and assists healthcare providers in making informed decisions.

The platform extends its scope beyond conventional healthcare by integrating AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy) services. This integration broadens the range of available healthcare options, promoting a more comprehensive approach to health and wellness.

eSanjeevani is an ambitious initiative that aims to revolutionize primary healthcare in India. Through its remote consultation services and integration of traditional medicine systems, the platform strives to make healthcare accessible, efficient, and holistic.

Indonesia



Progress to date

Indonesia is making progress in multiple components of the high-value health system. The survey indicates that the country has made meaningful progress in digital health, cost and outcome measurement systems, benchmarking, organization, and strategy. The National Health Insurance Program provides financial protection to patients, particularly those who cannot afford the cost of healthcare.²⁹ The program is designed to ensure patients receive high-quality care and incentivizes healthcare providers to deliver the best possible outcomes by implementing disease registries that collect information from providers and patients. One example is the Indonesian Renal Registry, which informs practitioners and policymakers about renal diseases in the country.³⁰ Several providers

²⁹ Mahendradhata et al., “The Republic of Indonesia Health System Review.”

³⁰ Abdurahman, Bandiara, and Supriyadi, “The Growing Burden of End Stage Renal Disease in Indonesia: Ten Years of the Indonesian Renal Registry Reports.”

have also developed clinical pathways, evidence-based guidelines that help them deliver standardized, high-quality care to patients.³¹

Persisting challenges

While Indonesia has made progress in various areas, some components are still in development, particularly value-based payment and procurement models. Additionally, the country faces challenges in implementing a unified national health data system, as electronic health records adoption is still an ongoing process.

Major opportunities

To accelerate the transition to a high-value health system, Indonesia should focus on scaling up best practices for patients countrywide by encouraging the implementation of clinical pathways at the national level. This would ensure that patients receive the right care at the right time, leading to improved health outcomes and a reduction in unnecessary costs.

Furthermore, investing in health information technology, such as the Mobile JKN Application, is essential to improve the quality of care. These digital initiatives are expected to allow patients to access and share health records and help them make better-informed decisions about their health.³² By addressing the challenges related to value-based payment and procurement models and unifying the national health data system, Indonesia can further advance its healthcare system and provide better care for its population.

Case Study: BPJS Kesehatan Sample Data

Since 2019, BPJS Kesehatan, the National Health Insurance Administrator, has published historical sample data of health services to facilitate data analysis and to encourage the public to participate in policy recommendations to improve the National

³¹ Helzainka, "Challenges in the Implementation of Clinical Pathway in Indonesia: A Systematic Review."

³² Observatory of Public Sector Innovation, "Mobile JKN, Health Insurance Services in Your Hand."

Health Insurance Scheme.³³ The sample data book became a useful strategy to provide accessible and transparent information considering the magnitude of a repository that serves more than 260 million Indonesians. It is estimated that more than 17 million transactions are registered in the main database every day.³⁴

The first version of the sample data book included information from 2015-2016 with more than 4.4 million rows and detail information on health services accessed including patient and providers details, primary and secondary conditions, admission and discharge times, and reimbursements, all by multiple levels of care and by territories.³⁵

BPJS Kesehatan has been expanding the samples every year, including new specific samples for diseases like diabetes and tuberculosis to facilitate the follow-up of local programs. BPJS Kesehatan confirmed that the 2022 sample contains more than 57 million rows of data and that it was available online for anyone interested after registering in the website.³⁶

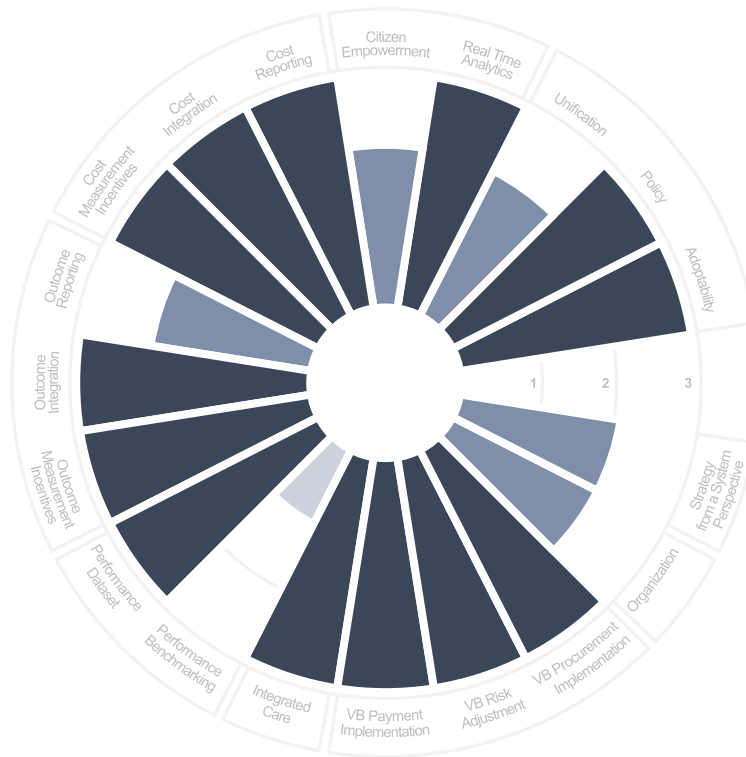
³³ BPJS Kesehatan, “Making Data Access Easy for the Public, BPJS Kesehatan Launches 2015-2018 Sample Data.”

³⁴ BPJS Kesehatan.

³⁵ BPJS Kesehatan.

³⁶ BPJS Kesehatan, “BPJS Kesehatan Launches Latest Sample Data and New Mobile JKN.”

Italy



Progress to date

According to a survey, Italy has undertaken various initiatives at different levels to create value for patients and other stakeholders. The major areas of success are in developing and improving cost and outcomes measurement systems, implementing integrated care pathways with bundled services, and expanding value-based payment and procurement models. Along with the other member countries, Italy has also committed to transforming its digital health system and is working towards a unified health ecosystem that includes Electronic Health Files, a centralized IT system for the unified booking of services, and telemedicine.³⁷

Italy has provided multiple case studies demonstrating the integration of pathways with bundle services. For example, the Lombardy region implemented a Hospital-Based Home Palliative Care in 2008 that aimed to align the organizational model and service activities

³⁷ Agenzia per l'Italia Digitale, "Digital Healthcare System|Agenzia per l'Italia Digitale."

among different providers that became part of the region's Nuove Reti Sanitarie project, a collection of innovative strategies for home palliative care delivery.³⁸

Persisting challenges

Some areas that need improvement are outcome reporting mechanisms, developing benchmarking capabilities, and encouraging stronger support from the national government to accelerate the transition to a high-value health system. The performance benchmarking capacity of the Italian health system could be improved. The unique structure of the health system, which emphasizes local territories and grants local governments the authority and responsibility for enabling continuous access to health care services, requires the development of mechanisms that encourage cross-learning by comparing results between regions.

Major opportunities

The Italian health system has gained strong experience in value-based procurement mechanisms through the wide use of Managed Entry Agreements. In 2020, 44% of the total agreements managed by the Italian Medicines Agency corresponded to payment by result, in which manufacturers reimburse 100% of the total cost to the National Health Service for non-responders.³⁹ By building on these experiences and addressing persisting challenges, Italy can further enhance its health system, ensuring better care for its population and creating value for all stakeholders.

Case Study: Implementing the Value Based Healthcare Ecosystem (VBHE) in Cardiovascular Risk Patient Management

The COVID-19 pandemic has worsened the health conditions of chronically ill patients and put a burden on health systems. To address this, the Italian Government introduced its National Recovery and Resilience Plan (NRRP) in 2021, which includes an

³⁸ Masella et al., "Implementation of a Hospital-Based Home Palliative Care at Regional Level."

³⁹ Xoxi et al., "A Proposal for Value-Based Managed Entry Agreements in an Environment of Technological Change and Economic Challenge for Publicly Funded Healthcare Systems."

ambitious health mission focused on digitization, innovation, and social inclusion.⁴⁰ The NRRP aims to establish 602 new Local Operational Centers for remote assistance, a "proximity healthcare" system that prioritizes local medicine, multidisciplinary approaches, networks with proximity hospitals, and digital health.⁴¹

Considering the proposed changes in the Italian health system, the Scientific Institute for Research, Hospitalization and Healthcare (IRCCS) and Daiichi Sankyo Italia joined forces to establish an Advisory Board for a Value-Based Healthcare Ecosystem (VBHE) in Cardiovascular Risk Patient Management.⁴² The VBHE aims to reduce cardiovascular risk and adverse events, promote appropriateness in treatment, and enhance adherence to therapy and primary and secondary prevention to prevent hospitalization and unfortunate events. To achieve this, the ecosystem will identify, test, and activate innovative models for managing patients at cardiovascular risk by utilizing Digital Health and enhancing hospital-territory-home integration.⁴³

The VBHE has already conducted a survey of over 200 Italian clinicians to determine the operational capacity and the organizational, human, and technological resources of Hospital Centers involved in the project to provide effective care for patients at high and very high cardiovascular risk based on the management protocols defined in the areas of interest.⁴⁴

⁴⁰ Ministero dell'Economia e delle Finanze, Repubblica Italiana, "The National Recovery and Resilience Plan (NRRP)."

⁴¹ Ministero dell'Economia e delle Finanze, Repubblica Italiana.

⁴² Daiichi-Sankyo, "Giornata Mondiale contro l'ictus cerebrale 2021. Entra nel vivo il progetto Value Based Healthcare Ecosystem per una gestione innovativa ed efficiente dei pazienti cronici a rischio cardiovascolare. Prima e fuori dall'Ospedale."

⁴³ Gisi, "Value Based Healthcare Ecosystem (VBHE)."

⁴⁴ Value-Based Healthcare Ecosystem (VBHE), "La voce dei nostri esperti."

Republic of Korea



Progress to date

The survey identified some areas in which Korea has made notable progress in relation to the components of a high-value health system, particularly in digital data systems, analytics, and integrated pathways of care. The Korean health system has made substantial efforts to implement the concept of value in its health system in the last decade. The National Health Insurance Service (NHIS) and the Health Insurance Review and Assessment (HIRA) collect information from 97% of the population regarding their use of health services and have made certain datasets available to the public.⁴⁵ The Korean health system provides analytics for more than 20 health conditions that can be compared among every healthcare provider participating in the NHIS. In 2019, NHIS launched the Korean Health Information Service (KHIS) to overcome the barriers for achieving unified patients' digital health data, leveraging existing patient EMRs.⁴⁶

⁴⁵ OECD, *Towards an Integrated Health Information System in Korea*.

⁴⁶ Korea Health Information Service, "About KHIS."

Persisting challenges

There is partial progress in the components of cost and outcome measurements, integrated provider networks, and implementing a national strategy to accelerate a value-based approach. Slow progress is observed in implementing value-based payment and procurement models, advancing on performance datasets, and a unified health data system beyond billing information. The survey also underlines the need for improving integrated care pathways, innovative value-based payment and procurement models, and better organizing providers in networks of care to respond to the fragmentation of services.

Major opportunities

Some progress is already occurring to promote citizen accessibility to their data and transparency, such as the implementation of the 'My Health Way' platform project that allows users to access public health data from their mobile phones, and cost and outcome reporting.⁴⁷ Interesting initiatives include the participation of multiple large hospitals in the global Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM), an initiative to standardize the structure and content of observational data to be used across various clinical domains and enable standardized analytics.⁴⁸ By building on these initiatives and addressing persisting challenges, Korea can further enhance its health system, ensuring better care for its population and creating value for all stakeholders.

Case Study: Using HIRA and NHIS datasets to drive health system transformations.

In 1997, the Korean government initiated the implementation of a Diagnosis-related groups (DRGs) payment model in particular disease groups as an alternative to a fee-

⁴⁷ Choi et al., "Development of a MyData Platform Based on the Personal Health Record Data Sharing System in Korea."

⁴⁸ Ahmadi et al., "OMOP CDM Can Facilitate Data-Driven Studies for Cancer Prediction."

for service (FFS) system. After a five-year pilot stage, the government introduced a nationwide voluntary program in the DRGs system that enrolled more than 60% of hospitals in the country.⁴⁹ The successful adoption of the new payment model transformed into a national policy when the DRGs system became mandatory for small hospitals in 2012 and for larger hospitals in 2013.⁵⁰

The transformation of the payment model was achieved in large part due to the data collected by the Health Insurance Review and Assessment (HIRA), the government agency responsible for claims review and quality assessment of the Korean National Health Insurance (NHIS). For instance, a study from Jae Woo Choi and colleagues published in 2019 used HIRA and NHIS data to confirm that the DRGs system significantly reduced length-of-stay (LOS) and readmission rates in mandatory participation hospitals compared to voluntary participation hospitals.⁵¹

The NHIS and HIRA datasets have the potential to link outcomes data with cost information. While the available data provides valuable information for a health financing perspective, neither of these datasets integrates information on clinical outcomes of treatments because claims are not affected by the results of the treatments. Integrating data on outcomes could provide a much more comprehensive analysis of the value generation for patients, providers and insurers.

⁴⁹ Choi et al., “Effects of a Mandatory DRG Payment System in South Korea.”

⁵⁰ Health Insurance Review & Assessment Service, “Healthcare Benefit Management.”

⁵¹ Choi et al., “Effects of a Mandatory DRG Payment System in South Korea.”

The Russian Federation



Progress to date

The Russian Federation has made some progress in different components from the HVHS framework, particularly in the areas of digital health and cost and outcome measurement incentives. The survey identified 5 indicators out of 19 in which Russia has achieved substantial progress. Every national medical research center in the country has adopted clinical telemedicine solutions, including peer-to-peer collaboration with immediate medical information exchange.⁵² As many other countries participating in this study, Russia has made progress in digital data and has harnessed support from the government to develop and implement a national strategy for its health system.

Persisting challenges

While there is active support to transform the health system, Russia still has room for reinforcing the components on analytics, cost and outcome measurement systems, and

⁵² Lebedev et al., “Development of Internet Technologies for Health Care in the Russian Federation.”

facilitating integrated provider networks. The major areas for improvement are the development of integrated care pathways and value-based payment models. There are other components that are in progress, but which could benefit from more support to realize their potential, such as innovative procurement models.

Major opportunities

In 2015, Russia launched a demonstration project to implement risk-shared agreements in the procurement of pharmaceuticals among private provider groups. This value-based procurement approach represented a major change from the conventional tender process, though it is yet to be introduced among providers in the public sector, where the vast majority of patients seek care. The country has explored other value-based programs, the most renowned being the cataract project led by the S. Fyodorov Eye Microsurgery Federal State Institution that has a target to reach 2,500 patients from four branches and private hospitals, in which it is collecting information about patient health outcomes.⁵³ Russian authorities also planned to run similar value-based projects for other priority conditions such as inflammatory bowel disease, diabetes, and coronary artery disease. These experiences are expected to support the country in implementing scaled-up strategies on value-based payment models.

Case Study: The Center for Expertise and Quality Control of Medical Care

The Center for Expertise and Quality Control of Medical Care of the Russian Federation is a government agency dedicated to improving the quality and accessibility of healthcare services for the citizens of Russia. Among its key activities, the Center focuses on implementing globally recognized approaches for healthcare financing and quality control, adapting international healthcare programs to the Russian context, and conducting health technology assessments.⁵⁴

⁵³ Omelyanovskiy, “Value-Based Healthcare Development in Russian Federation.”

⁵⁴ “Center for Healthcare Quality Assessment and Control of the Ministry of Health of the Russian Federation | P4H Network.”

One of the key areas of focus for the Center is the improvement of payment options in healthcare. To this end, the Center is actively involved in the development and implementation of DRG-based hospital financing and co-financing mechanisms, which align with current global best practices. These financing options ensure that healthcare providers are compensated fairly for their services, while also incentivizing them to deliver higher-quality care.⁵⁵

The Center is also committed to developing a healthcare quality control system that ensures that patients receive safe, effective, and high-quality care. To this end, the Center is working to implement paying providers for performance schemes, which reward healthcare providers for meeting specific quality criteria and to develop healthcare quality criteria that reflects best practices in patient safety and health outcomes.⁵⁶

Since 2020, the Center for Expertise and Quality Control of Medical Care of the Ministry of Health of Russia has been participating in the implementation of the largest healthcare digitalization project in the country - the development and implementation of vertically integrated medical information systems (VIMIS). The main goal of VIMIS is information support for the verticalization of medical care organization to increase efficiency in each profile at all levels - from medical organizations to the Ministry of Health.⁵⁷ Currently, VIMIS is developing in the following priority areas: Oncology, Cardiovascular Diseases, Obstetrics, Gynecology and Neonatology, Preventive Medicine, Infectious Diseases.

⁵⁵ Center for Healthcare Quality Assessment and Control of the Ministry of Health of the Russian Federation, "About US."

⁵⁶ Center for Healthcare Quality Assessment and Control of the Ministry of Health of the Russian Federation.

⁵⁷ Boyarskikh et al., "Balance of Digital Transformation of the Healthcare System on the Example of Vertically Integrated Medical Information Systems (VIMIS)."

Saudi Arabia



Progress to date

The Kingdom of Saudi Arabia is committed to transforming its health system as part of the nationwide "Vision 2030," which includes 25 public entities, including the Ministry of Health and major reforms in the health system.⁵⁸ The Health Sector Transformation Plan aims to achieve a more sustainable and accountable health system centered around value-based healthcare and improved health outcomes at the population level.⁵⁹ The young demographic and digital literacy of Saudi Arabia's population have facilitated the quick adoption of digital technologies in the health system, such as the Ministry of Health's "Sehhaty" app for reserving appointment in primary health clinics and providing a means for simpler referrals to secondary or tertiary care.⁶⁰

⁵⁸ Kingdom of Saudi Arabia, "Vision 2030."
⁵⁹ "Health Sector Transformation Program."
⁶⁰ Ministry of Health, Kingdom of Saudi Arabia, "«Sehhaty» Platform."

Persisting challenges

The Saudi health system has historically faced critical system issues such as fragmentation and duplication, with quality not uniformly measured among public and private providers. Implementing electronic health records has been challenging due to the fragmentation of various health schemes, leading to duplication and fragmentation of services.⁶¹ Different provider groups have their own electronic health records, and there is very little interoperability between EMR systems across the private and governmental sectors.

Major opportunities

The Saudi government is working to address these issues by prioritizing data-driven integrated care pathways, emphasizing primary healthcare over a hospital-centric system, and building more responsive healthcare organizations.⁶² Various demonstration projects are being implemented to measure patient experiences, including the OECD's PaRIS project on measuring patient-reported outcomes and patient-reported experience in patients with chronic diseases.

Moreover, plans are established to introduce a unified electronic health record across all healthcare sectors, which has the potential to substantially improve the integration of care. The government is also developing value-based procurement initiatives, such as Nupco's implementation of value-based purchasing models for most drugs for public hospitals.⁶³ The Council of Health Insurance has expressed strong support for transforming to a value-based health system, demonstrating the potential for continued progress in the future.⁶⁴

Case Study: The SEHA Virtual Hospital

⁶¹ Alessy et al., "Population Health Data in KSA."

⁶² Al-Kahtani et al., "Digital Health Transformation in Saudi Arabia."

⁶³ National Unified Procurement Company, "About Nupco."

⁶⁴ Council of Health Insurance, "Value-Based Health Care in the Saudi Health Insurance Market."

In February 2022, the Ministry of Health of Saudi Arabia launched the country's first virtual hospital, as part of a broader initiative to digitize the healthcare industry and enhance accessibility and efficiency of health services.⁶⁵ The SEHA Virtual Hospital (SVH) is the largest of its kind globally, with a network of 152 connected hospitals in the country and the capacity to provide services to over 400,000 patients a year.⁶⁶

The government expects that patients will no longer need to travel across the Kingdom to see specialized physicians, and they will not be restricted by traditional clinical hours. Patients could obtain second and third medical opinions during the same consulting session, and vital signs and tests can be shared with a network of specialists during real-time video consultations.⁶⁷ The SVH has more than 34 subspecialties and covers 15 clinical specialties, including hospital-at-home follow-ups. Some of the digital technologies used in the SVH include artificial intelligence, augmented reality, and the Internet of Things.⁶⁸

⁶⁵ Khashogji, "Saudi Arabia Launches First Virtual Hospital."

⁶⁶ Ministry of Health, Kingdom of Saudi Arabia, "Seha-Virtual-Hospital."

⁶⁷ Ministry of Health, Kingdom of Saudi Arabia, "SEHA Virtual Hospital. Our Future Is Today."

⁶⁸ Ministry of Health, Kingdom of Saudi Arabia.

Singapore



Progress to date

Singapore has made great progress in building a high-value health system, achieving success in 15 out of 20 indicators from the survey. The country has implemented multiple strategies in digital health, analytics, cost and outcome measurement systems, integrated care pathways, value-based procurement, and integrated provider networks, with a clear mandate from the Ministry of Health. In 2012, the Healthcare 2020 Masterplan was announced to increase healthcare capacity and enhance affordability and financial risk protection.⁶⁹ Later in 2016, the Ministry of Health introduced the Three Beyonds strategy to guide the long-term transformation of the health system.⁷⁰

Integrated Health Clusters:

⁶⁹ Ministry of Health, Republic of Singapore, “Healthcare 2020: Improving Accessibility, Quality & Affordability.”

⁷⁰ Tan et al., “Singapore’s Health-Care System.”

In 2017, Singapore's health system was reorganized into three integrated clusters based on geographic regions: National Healthcare Group (NHG), SingHealth (SHS), and National University Health System (NUHS). Each cluster offers a range of services encompassing primary care, acute hospital care, and community care. They focus on initiatives to improve cost management while enhancing treatment and patient outcomes in specific clinical conditions. In 2019, several conditions underwent a demonstration case for a bundle care payment model to advance value-based payment models.

Healthier SG Strategy:

Announced in March 2022, the Healthier SG strategy outlines a major reform to drive population health through a life course approach.⁷¹ It shifts the emphasis from reactively caring for those who are sick to proactively preventing individuals from falling ill. The strategy features five key aspects: mobilizing primary care and family doctors for preventive care, developing health plans with lifestyle adjustments and preventive measures, partnering with community providers to support healthier lifestyles, promoting commitment from residents to see one family doctor and adopt a health plan, and establishing necessary enablers such as IT, manpower development plans, and financing policies.⁷²

Persisting challenges

Despite progress, Singapore's health system faced critical issues in 2012, such as acute public hospital bed shortages and affordability challenges, with out-of-pocket expenses accounting for approximately 40% of the country's total healthcare expenditure. These issues were driven by factors like an aging population, rising burden of non-communicable disease, unmet primary care needs, high levels of out-of-pocket payments, and incentives.

Major opportunities

⁷¹ Ministry of Health, Republic of Singapore, "Promoting Overall Healthier Living While Targeting Specific Sub-Populations."

⁷² Healthier SG, "The White Paper on Healthier SG."

The Three Beyonds strategy and Healthier SG strategy present important opportunities for further progress in Singapore's health system. By focusing on primary care, community care, and prevention, the country aims to address the underlying drivers of system stress while attending to broader health and health-related social needs of individuals across their life course. With continued emphasis on cost management, treatment and patient outcomes, and proactive prevention measures, Singapore is well-positioned to continue advancing its high-value health system.

Case Study: Agency for Care Effectiveness, driving better decision-making in healthcare

Modeled after the National Institute for Health and Care Excellence in the United Kingdom, the Agency for Care Effectiveness was established in 2015 to support providers, patients, and payers make better-informed decisions about patient care. ACE achieves this by conducting health technology assessments (HTAs), publishing healthcare guides and providing education.⁷³

Specifically, to HTA, ACE conducts technical evaluations that informs funding decision by (1) publishing technology guides on the clinical effectiveness, safety, and cost-effectiveness of health technologies; (2) conducting value-based pricing negotiations with manufacturers; (3) tracking utilization and outcomes related to funded health technologies, and; (4) developing and implementing adoption strategies within public healthcare institutions to drive uptake of technology guides.⁷⁴

Since its inception, the work that ACE has done has delivered more than \$400 million in cost savings to the health system, improved access, and affordability for selected

⁷³ Agency for Care Effectiveness, "Who We Are."

⁷⁴ Papagiannopoulos, "HTA213 Seven Years of HTA in Singapore."

medication to medical technologies for over half a million patients and reduced the cost of treatment by over 50% in selected health technologies.⁷⁵

⁷⁵ Agency for Care Effectiveness, “Impact Highlights. Year in Review: 2021.”

Türkiye



Progress to date

Türkiye has made meaningful progress in digitalization, analytics, and outcome measurement systems since implementing its Health Transformation Program in 2003. The Turkish Ministry of Health committed to a digital transformation in 2013, and in 2015, the country introduced the E-Nabız Personal Health System, accessible through a web-based or mobile application by patients, doctors, and health provider organizations.⁷⁶ This platform has facilitated communication between patients and physicians while improving the efficiency of patients' care journeys through the health system. The mobile application even received the "Best Health Application" award at the World Summit Award in 2017.⁷⁷

Additionally, Turkish public hospitals have implemented the HIMSS Electronic Medical Record Adoption Model (EMRAM), enabling providers to assess clinical care and patient-

⁷⁶ Ministry of Health, Republic of Türkiye, "About E-Nabız."
⁷⁷ Anadolu Agency, "UN Award for Best Health App Goes to Turkey."

reported outcomes.⁷⁸ In 2019, over 150 public hospitals achieved EMRAM's stage six-level.⁷⁹ The country has also made strides towards a unified national health record system and emphasized transparency regarding healthcare goods and services prices and outcomes.⁸⁰

Persisting challenges

Despite its progress, Türkiye still faces challenges in improving cost measurement systems, implementing value-based payment and procurement mechanisms, and consolidating a national strategy for health system transformation. The country needs to strengthen its performance benchmarking capacity and adopt value-based payment and procurement mechanisms more widely. Aligning payment models with value and adjusting for patient risk is essential for further development. The country could also benefit from emphasizing the integration of care through pathways with bundled services.

Major opportunities

Türkiye has several opportunities for improvement in its health system. The MEDULA system, implemented in 2009, could be prioritized and enhanced to become a powerful tool for driving value-based payment and procurement strategies across the nation. Registering billing data between the General Health Insurance and multiple health providers, the system has the potential to considerably improve Türkiye's health system. There is also a critical need to implement policies that explicitly recognize the importance of value-based approaches among all healthcare actors in the system. By focusing on these areas, Turkey can continue to advance towards a high-value health system, building on its achievements so far.

⁷⁸ HIMSS, "Turkish Ministry of Health Signs Five-Year Plan with HIMSS to Boost Digital Excellence in Hospitals | HIMSS."

⁷⁹ HIMSS.

⁸⁰ Kose et al., "Adoption Rates of Electronic Health Records in Turkish Hospitals and the Relation with Hospital Sizes."

Case Study: TÜSEB

The Turkish Health Institutes (TÜSEB) was established in 2015 as a governmental agency in charge of advancing research in health science and technology to support its national development objectives. Since its inception, the agency has invested in and incorporated multiple institutes within TÜSEB that are prioritizing and actively shaping the path towards a health system transformation in Türkiye.⁸¹

For instance, the Turkish Health Policies Institute (TÜSPE) created in 2017, leads the research, monitoring and evaluation of areas related to health management, health economics and financing, health services provision, among others. The TÜSPE has been working with international partners like the Global Innovation Hub for Improving Value in Health to explore value-based payment models and has hosted key events like the TÜSEB-TÜSPE International Health Policies Congress in 2022.⁸²

Most recently, the TÜSEB presented the regulation for the Turkish Institute of Health Data Research and Artificial Intelligence Applications (TÜYZE) created in 2019 to improve the Turkish health system by developing a digital health ecosystem integrating digital health and technology.⁸³ The TÜYZE has hosted multiple seminars and conferences with key local and international organizations to explore how the country can accelerate the digital transformation of its health system.

⁸¹ “Türkiye Institute for Health Policies.”

⁸² “Türkiye Institute for Health Policies.”

⁸³ “Türkiye Health Data Research and Artificial Intelligence Applications Institute.”

United States of America



Progress to date

The United States has demonstrated leadership in discussing and implementing value-based healthcare strategies across multiple levels of care. The country has excelled in areas such as digital health and analytics, cost reporting, and value-based payment implementation. This progress reflects a commitment to data-driven decision-making, citizen participation, and the integration of value-based payment models that encourage better outcomes for patients. Government-managed programs like Medicaid and Medicare have meaningfully benefited from these initiatives. The Centers for Medicare & Medicaid Services (CMS) has set a target to have all Medicare beneficiaries and the majority of Medicaid beneficiaries under some form of value-based care by 2030.⁸⁴

Persisting challenges

⁸⁴ King, “CMS Looking at Quality Metrics to Get ACA Exchange Plans into Value-Based Care.”

Despite its progress, the United States faces challenges in scaling up key initiatives due to the fragmentation of its health system. There is considerable room for improvement in areas such as cost measurement incentives, outcome integration, performance dataset, performance benchmarking, and value-based procurement implementation. The country also needs better coordination and collaboration across health system agents and greater transparency and accountability through benchmarking analytical tools.

Major opportunities

The United States has major opportunities to improve its path towards a high-value health system. By focusing on cost and measurement systems, performance benchmarking, and developing a national strategy that encompasses both government programs and private health insurance, the country can continue to transition towards a high-value health system that delivers better care at a lower cost, and more equitably to all citizens. As CMS and the Center for Medicare and Medicaid Innovation (CMMI) update their strategies and test various models and tools to increase the adoption of value-based models, the United States can build on its progress and address its challenges to further advance its health system.

Case Study: Merit-Based Incentive Payment System

The Merit-Based Incentive Payment System (MIPS) is a value-based payment program developed by the Centers for Medicare and Medicaid Services (CMS) to incentivize healthcare providers to improve the quality of care they provide to Medicare beneficiaries. MIPS consolidates and replaces three prior programs: the Physician Quality Reporting System (PQRS), the Value-Based Payment Modifier (VBPM), and the Medicare Electronic Health Record (EHR) Incentive Program.

Under the MIPS program, healthcare providers are scored on four performance categories: Quality, Cost, Promoting Interoperability (formerly Meaningful Use), and

Improvement Activities.⁸⁵ These performance categories determine the provider's final MIPS score, which can have a positive or negative impact on their Medicare payments. The program aims to encourage providers to improve the quality and value of care they provide to their patients, reduce healthcare costs, and promote the use of certified EHR technology.⁸⁶

MIPS is a vital part of CMS's efforts to move towards a more value-based health system, where healthcare providers are incentivized to provide high-quality, efficient care to their patients.⁸⁷ By rewarding providers who excel in the four performance categories, CMS hopes to improve patient health outcomes while simultaneously reducing healthcare costs. MIPS allows for a more patient-centered approach to care and promotes the use of technology to streamline and improve care delivery.

⁸⁵ U.S Centers for Medicare & Medicaid Services, "Quality: Traditional MIPS Requirements."

⁸⁶ "Understanding Medicare's Merit-Based Incentive Payment System (MIPS)."

⁸⁷ Jacobs et al., "The Medicare Value-Based Care Strategy: Alignment, Growth, And Equity."

Section 4: Accelerating the transition to the HVHS Model

As countries improve their health systems and each actor adopts different initiatives and strategies to provide services and technologies, they could move towards a value-based health system. However, governments can accelerate this transition in an organized and structured way so that their countries can achieve a high-value health system in the shortest possible time to benefit citizens, patients, health providers, and payers. In this section, we present three different strategies that countries have adopted to move towards the Harvard HVHS model, and propose five enablers that governments could prioritize to accelerate their transition.

4.1. Strategies to transition to the HVHS model

Each country conceives, designs, and sequences the development of each of the 10 components differently based on its motivations to transition to a HVHS, health system dynamics, and the balance of various political, economic, and social forces. However, there are three strategies that all countries can follow when transitioning to the HVHS model and could be used to inform and develop a national HVHS strategy to accelerate country transition:

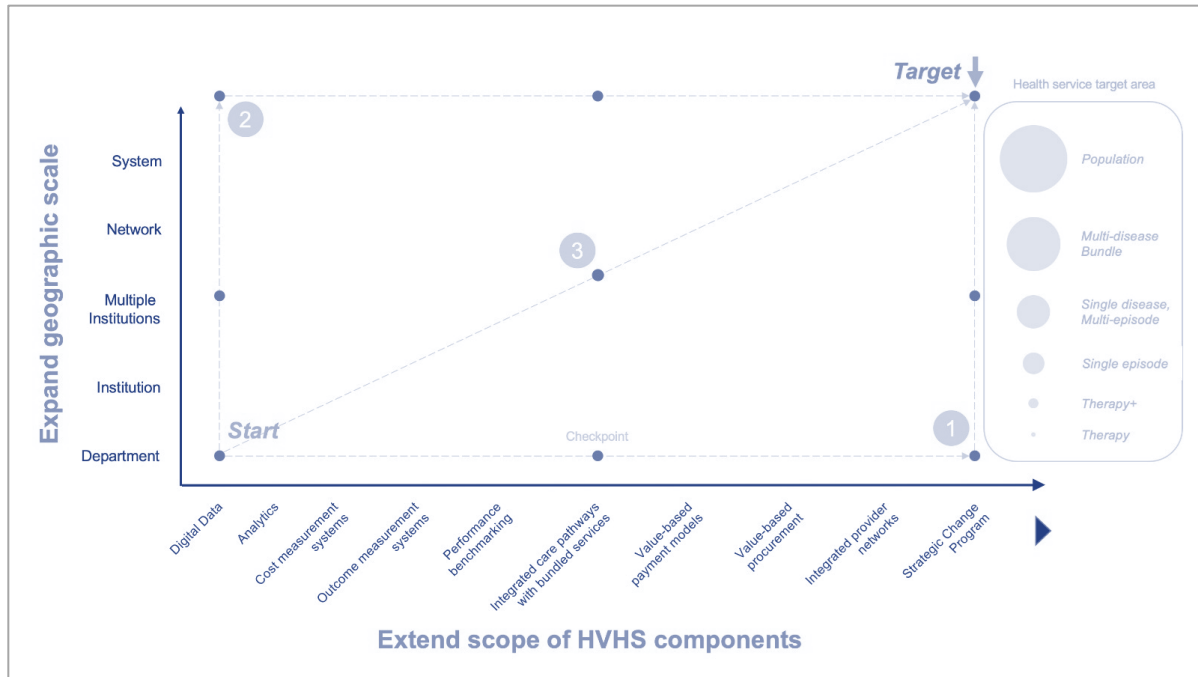
(1) Extension Strategy: implies extending the *scope* of the HVHS components—going from one to multiple components—followed by expanding the geographic *scale*—going from a small initiative to a health system-wide intervention;

(2) Expansion Strategy: indicates expanding the *scale* followed by the extension of *scope* (note that the difference between the extension and the expansion strategies is the order); and

(3) Transformation Strategy: a hybrid approach that simultaneously combines extension with expansion with the introduction of system level transformations.

While most countries appear to follow the expansion or extension strategies, the biggest potential could be achieved if countries embarked on a transformational approach. Figure 4 depicts the pathways of the different strategies:

Figure 4: Harvard HVHS Transition Matrix



Source: Authors

Extension Strategy: extend scope followed by expansion of scale

The extension strategy begins by introducing a proof-of-concept demonstration of one or more of the 10 high-value health system (HVHS) model that is applied to one of the five health service target areas (Figure 4, Pathway 1). The primary aim of this demonstration is to design and execute a minimum viable innovation, i.e., a working prototype, or Minimum Viable Innovation (MVI) that can yield the desired outcomes, evaluate the system's receptiveness to the innovation, and guide the strategic change required needed for scale-up.

The most basic demonstration could involve advancing one of the 10 HVHS components (e.g., Digital data systems) at a low level in the system (e.g., Department of Surgery) focused on a relatively low complexity target health service (e.g., episode of care such as a readily measurable surgical procedure that is high-volume and time-limited). The MVI is then extended in scope by introducing additional HVHS components and or health service areas while enhancing the strategic change process, introducing pertinent policies

and capabilities, and creating an innovation ecosystem that enables readiness for replication and expansion of the MVI to other departments, institutions, and eventually, the system level.

The Diabeter model in Saudi Arabia followed this approach (Panel 1), The extension strategy has been followed by several other countries, including, among others, the Netherlands (Diabeter), USA (Boston Children’s Hospital, Department of Plastic and Oral Surgery), and Germany (Martini Klinik).

Panel 1: Diabeter: an illustrative example of the extension strategy

Diabeter, a value-based approach to delivering high-value healthcare services for Type 1 Diabetes Mellitus (T1D), provides valuable lessons for both the extension strategy and potential to internationalize promising value-based initiatives within the G20. Initially pioneered in the Netherlands, Diabeter was adapted, expanded, and introduced in Saudi Arabia to tackle the rising unmet need of T1D among children and adolescents.⁸⁸

Diabeter focused on six HVHS components (digital data system, analytics, integrated care pathways, integrated provider networks, and value-based payment models underpinned by strategic change management) and applied these components to create value in healthcare services required for T1D. The site of these changes in how healthcare services for T1D were delivered occurred at the institutional level. Both individual and population-level health services are required for the management of T1D. Diabeter primarily delivered individual-level healthcare services, focusing on diagnostic and therapeutic healthcare services, but also used the patient encounter for health promotion in terms of the lifestyle changes required to effectively manage T1D.

Diabeter designed a digital data system that provided EMR capabilities. All patients attending the Diabeter clinic had a unique patient identifier, where their medical history, examination findings, results, and medications were recorded. The platform had analytics

⁸⁸ DiabeterSA, “Who We Are.”

capabilities providing continuous monitoring and analysis of patients' health data, enabling care providers to manage and adjust treatment proactively, measurement processes, outcomes, and costs of every patient, and identification of trends and variation in outcomes.

Integrated care pathways in relation to the patient journey typically experienced by individuals with T1D in the Saudi health system. These integrated care pathways included risk-adjusted bundled interventions across the care continuum, delivered by a multidisciplinary team of T1D clinical and non-clinical healthcare providers. The integrated care pathway was implemented across the entire T1D care continuum from primary, secondary, and tertiary levels. Diabeter providers were remunerated based on outcome-based payment models with bundled payments.

The design and implementation of Diabeter was supported by a robust strategic change management program involving senior leadership engaged in the Saudi Health Sector Transformation Program, an inclusive process involving key stakeholders (clinicians, patients, government) in the co-design and iterative implementation of Diabeter, and using engagement to gradually instill a change in institutional logic towards a more value based-orientation by understanding their mental models that would influence the success of Diabeter.

Expansion Strategy: expand scale followed by extension of scope

The expansion strategy involves introducing a proof-of-concept demonstration of the high-value health system model, which may comprise one or more of the 10 HVHS components applied to any of the health service target areas (Figure 4, Pathway 2) at either the departmental or institutional level. However, the chosen pathway emphasizes geographic scaling before including additional HVHS components or other health service target areas, which contrasts it from the expansion strategy. Once a demonstration has led to the design and implementation of an MVI, it should be expanded from a single unit, department, or institution to multiple institutions, networks, and the system level.

Discovery Health, a health insurance firm in South Africa, provides an illustrative example and has introduced several value-based programs since its inception 31 years ago. Discovery Health provides an ideal example of the expansion strategy, having developed a value-based portfolio of projects comprising at least six programs that emphasize one or more HVHS components (Panel 2). These programs were designed with a demonstration case, providing an opportunity to enhance the design of the MVI, optimize the change management approach, and promote receptiveness within the health system, were scaled nationwide to all members that benefit from its medical insurance scheme, an estimated 3.73 million people. The expansion strategy has been followed by several other countries and case examples, such as the United Kingdom (Getting It Right First Time), India (Aravind Eye Hospital, Narayana Health), Portugal (Cataract Surgery), and United States (CMS).

Panel 2: Discovery Health: Illustrative Example of the Expansion Strategy

There are two programs to highlight within the firm's value-based portfolio. First, Discovery Vitality is a behavior change program that promotes wellness and primary prevention among all Vitality members offered to individuals and employer groups. The platform is underpinned by big data and research on behavior change and nudge theory to incentivize its members to make healthier lifestyle choices and thus prevent disease and unnecessary healthcare services. Discovery Vitality consists of three major components: 1) a reward system based on earning Vitality Points and Discovery Miles; 2) a network of affiliated partners; 3) a range of wearable devices. These three components are recorded in a digital data system served to Discovery Members as an online dashboard to keep track of progress via their smartphone, tablet, or personal computer.

Vitality members progress through five statues—Blue, Bronze, Silver, Gold, and Diamond—based on points that they could earn by completing activities in five categories: “Know Your Health”, “Get Active”, “Make Health Choices”, “Condition Management”, and “Babies and Kids”. Each of the activities within these categories is evidenced-based to promote wellness, ascertain level of risk to developing a health condition, or prevent the

onset of developing a disease. For example, “Get Active” includes a series of measurable activities such as attending an in-person fitness assessment or the number of workouts and daily steps to earn Vitality points. Vitality Members earn and spend points through a network of affiliated Partners. For example, Members receive access to all Virgin Active Gyms in South Africa at a lower Discovery membership fee and are rewarded by spending points for attending the Gym. Members can then unlock benefits by spending Discovery Miles within the partner network based on their Vitality Status. For instance, Discovery Members can save up to 75% on local and international flights through their airline network, including Emirates and South African Airways.

The Discovery network is attractive and reinforces the behaviour change strategy and extensive several sectors, including transport (Uber, British Petroleum), Entertainment (Ster Kinekor, a South African Cinema chain), Technology (Apple, FitBit), Retail (TakeALot, an online retail firm), Food and Beverages (Woolworths), tourism (Sun International, Avis), among others. Finally, Members can purchase a range of wearable devices and smartphones at highly discounted rates or occasionally without any cost to the Member if certain milestones are met. For example, Members that access the Apple Watch benefit receive a proportional monthly discount concerning fitness milestones achieved and recorded through the Apple Watch.

Second, the Discovery Hospital at Home Program enables patients admitted to the hospital (either through GP referral or presentation in the Emergency Room) to receive equally effective care at home, but which is more responsive and efficient. The model is inspired by the Brigham Hospital Program, which engaged Discovery in the development of the program. Patients are carefully selected based on risk and typically include those with Cardiac Failure, Chronic Obstructive Pulmonary Disease, Lower Respiratory Tract Infections, and Complicated Urinary Tract Infections, among others. These patients are typically sick enough to require hospital monitoring, blood or radiological diagnostics, and intravenous treatment but who are not ill enough to require admission into an Intensive Care Unit.

Patients that receive care through the Discovery Home Hospital Program are visited by a nurse daily and on demand depending on the severity of the condition and receive all initial investigations they would receive in the hospital setting, but in the comfort of their home. The model relies on point-of-care service devices (e.g., the iStat developed by Abbot) that provide immediate blood test results to the nurse during their visit and analytic devices (e.g., through a Biofourmis Device) that offer remote clinicians with continual vital signs to monitor patient progress and escalate management when needed. Clinical providers are remunerated on a single global fee for all services for the medical condition they are receiving care.

These two major value-based programs implemented by Discovery highlight HVHS data systems, analytics, and bundled payments and how Discovery is developing specific programs focusing on one or two HVHS components and using its entire member base to scale it nationwide. Discovery Limited, the financial services parent group comprising Discovery Health, Discovery Vitality, Discovery Bank, among others, has leveraged its success in South Africa to provide a suite of integrated financial, health, and insurance products in 28 countries, providing an opportunity to further expand these programs beyond South Africa. The principle of shared value has helped the firm embrace the concept of value-based healthcare in South Africa, despite the contextual challenges in the country's economic and political environment.

Transformation Strategy: simultaneous expansion of scope and scale

The transformation strategy is a hybrid approach that prioritizes building an enabling ecosystem for HVHS, while simultaneously expanding the high-value health system model by introducing multiple innovations at different scales and expanding their scope and scale (Figure 4, Pathway 3). As the system gains experience, builds capabilities, and implements a strategic change management program with policies that encourage the strengthening and addition of the 10 components of a high-value health system, critical lessons are learned that support the ongoing system transformation.

This hybrid approach allows for innovative, high-value solutions to be implemented at various levels of scale in the system while also driving substantial transformations at the system level through policies that encourage innovation generation, design, adoption, and diffusion in an ecosystem that supports both "emergent" and "driven" innovations. Examples of the transformation strategy to shift towards high-value health systems include the Catalan Health System and the Health System of Türkiye.

4.2. Five enablers to accelerate the HVHS Transition

There are five critical enablers that G20+ countries or any other nation interested should prioritize to accelerate their transition to the Harvard HVHS model (Figure 5). From Section Three it is possible to identify how some of these enablers have supported the implementation of programs, initiatives, and strategies to advance into a value-based health system. Nevertheless, prioritizing the five enablers while setting an acceleration strategy will increase the potential to achieve a high-value health system.

1. Development of National HVHS Strategy

The development of a National HVHS Strategy (NHS) confers three major advantages: 1) a process to engage critical healthcare stakeholders and develop a value agenda; 2) identification of the major HVHS priorities to pursue; 3) political commitment to support the HVHS transition. An HVHS strategy aligns the HVHS transition program with the national vision for the country's continued health system development and other national developmental objectives of the state. The NHS also enables country to estimate the fiscal space and other potential funding range needed to implement the NHS, together with modelling to determine efficiency gains over the long-term and positive spillover effects on other sectors, to justify the investment in the health system.

2. Leadership demonstrated among all critical stakeholders

Without leadership at the highest level, a country will struggle to develop and implement a focused HVHS transition strategy. Leadership is essential and must be distributed across and within five crucial stakeholder groups: government, providers, private payers, healthcare firms and the medical establishment (Table 5). Most of all, countries will need

to create the conditions in which the five major stakeholders can work together, instead of the current zero-sum approach that characterizes stakeholder engagement in most countries.

Table 5: Distributed Leadership among and within Five Critical Stakeholders in Health Systems

Stakeholder	Major contribution to the HVHS components and other crucial roles
Government	<ul style="list-style-type: none"> • Strategic change and innovation ecosystem • Benchmarking • Expand fiscal space to fund HVHS transition • Coordinate and organize of plurality of actors involved in HVHS transition • Develop relevant policies needed for the HVHS transition
Providers	<ul style="list-style-type: none"> • Outcome measurement systems • Cost measurement systems • Integrated care pathways with bundled services • Integrated provider networks
Payers	<ul style="list-style-type: none"> • Value based payment models
Healthcare and IT Firms	<ul style="list-style-type: none"> • Digital data systems • Analytics • Value-based procurement
Medical Establishment	<ul style="list-style-type: none"> • This includes professional clinical association and medical education and training institutions: • Advocacy and promotion of awareness relating to HVHS • Align clinical practice with HVHS principles • Education and training tailored towards implementing HVHS • Research and involvement in innovation creation • Guidance on the creation of registries

Source: Authors

3. Financing

While the transition to the HVHS model will produce value for money and value for many over the long-term, financing will be required to fund demonstration projects, development of minimal viable innovations, and the capital costs needed to introduce data systems capable of measuring, pooling, and analyzing outcomes and cost data. Investment in clinical workflow and functional reorganization of care around the patient and across provider groups may also be needed. New entities may need to be instituted to oversee the HVHS strategy, manage registries, regulate providers, payers and certify new technologies, among others.

Healthcare firms and startups may also need to develop new business models to produce the goods and services required by the HVHS. In addition to leveraging existing resources in both the public and private sectors more creatively and intentionally to support the NHS,

fiscal space could be expanded, and innovative financing mechanisms developed to unlock funding for HVHS transition activities.

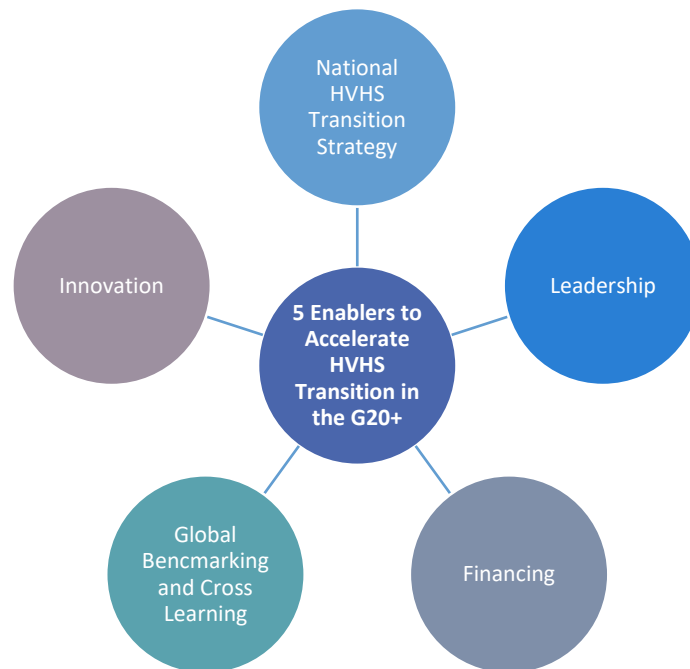
4. Global Benchmarking and Cross-Learning

Platforms that consolidate country level data into an integrated dataset that enables cross-country comparison, analysis, and research will be invaluable to promoting learning across and within countries about what works and what does not at the system level. Such a dataset could be a public good and managed by an academic institution or multilateral entity that uses country level data to present global progress in HVHS transition, conduct advanced analyses (advances data science techniques and machine learning at scale), and make data available for research entities to inform policy and practice. Eventually, such a platform could be updated in real-time, appreciated using existing virtual realities tools, and policy scenarios simulated to inform design and implementation. An annual publication that uses such data to highlight progress made and key insights could be presented at an annual HVHS summit or the G20 Leadership Summit each year.

5. Innovation

Innovations in new products, delivery of health services, policies, programs, and institutional arrangements will be critical to drive the transition toward the HVHS model. In addition, health system reforms will be needed to enable rapid and expanded uptake of innovations and delivery at scale to achieve population-level impact. A more enabling ecosystem for innovation in health systems will be essential to involve more stakeholders in the innovation process, unlock startup capital, provide the necessary technical and strategic guidance, and ensure access within health systems to rapidly iterate potentially transformative HVHS innovations.

Figure 5: The Five Critical Enablers to Accelerate the Transition to the Harvard HVHS Model



Source: Authors

4.3. Accelerating HVHS transition in the G20+ by developing an HVHS progress-tracking initiative

The transition to a high-value health system is a critical goal for all G20+ countries, as it seeks to optimize health system functions and deliver high-value health services to citizens. Our study attempted to provide a baseline for understanding how countries are transitioning to a HVHS, but accessing comprehensive data from each country was a major challenge.

We propose that the G20 countries adopt this study and conduct it annually to provide ongoing information about the group's evolution in the path of a value-based system. The Global Innovation Hub can lead this initiative for Improving Value in Health, an organization created by the G20 to accelerate the global transformation towards value-based care through knowledge, experience, and collaboration.

By implementing this survey every year, G20 members could benefit from cross-learning opportunities, allowing them to share experiences and insights into how to improve health systems in their countries. Tracking the 10 components of a HVHS in every G20 country provides multiple benefits. For example, digital data systems are crucial for optimizing health system functions and delivering high-value health services to populations and individuals. However, many countries need more resources and technical capacity to implement digital systems. By tracking the performance of digital data systems in G20 countries, the group will identify areas where additional support and investment may be needed.

Additionally, value-based payment models and value-based procurement are critical components of an HVHS. These models reward outcomes and incentivize stakeholders to contribute to value creation at the system level. By tracking the performance of these models in G20 countries, members and guests will be able to identify areas where there is a need for improvement and share best practices across countries to achieve better outcomes.

Moreover, integrated care pathways with bundled services are essential for providing a coordinated and seamless continuum of services to patient populations. By tracking the performance of integrated care pathways in G20 countries, policymakers and leaders will identify areas where integration works well and share lessons learned on replicating successful models in other countries.

Implementing this survey every year through the Global Innovation Hub for Improving Value in Health is essential for the G20 countries to transition to an HVHS successfully. It provides a platform for ongoing information sharing and cross-learning opportunities, and it motivates regional studies that cover G20 nations and beyond. By tracking progress along the 10 components of an HVHS, the G20 group of countries will identify areas for improvement, share best practices, and ultimately work towards achieving high-value health systems that deliver better health outcomes and greater value for citizens.

4.4. Future studies

The present study could be replicated every year with the technical support of one of the advisory partners of the G20 group of countries and the auspices of the leadership of the G20 Presidency. In the first ministerial meeting, the G20 Presidency and the technical advisory partner could lead a session in which they will present to the G20 and other participating countries and institutions the results of the most recent analysis and encourage each representative to participate in the new study by appointing a contact person to join in the survey and interviews to provide the necessary information to track the status of their transition to a high-value health system.

The G20 group could use this annual initiative to develop an online library of case studies that collect the experiences of countries that are succeeding in their health system transformation. This library could classify the cases by identifying how they impact one or multiple components of the Harvard HVHS framework (see Annex D for examples of cases that the Harvard HSIL has identified and that relate to at least one component). Sharing experiences and cross-learning initiatives are key to improving health systems. As demonstrated in this study, the G20+ countries have different levels of experience in implementing value-based health systems, and some may face challenges that others have already overcome. By sharing knowledge through case studies, the G20 will provide major support and impetus for accelerating the global transition towards high-value health systems.

The technical advisory partner should engage with each country representative to ensure each country can assess its progress in relation to each of the 10 components of the HVHS framework. The G20 Presidency and the technical advisory partner could present the final report at a session during the annual ministerial meeting, encouraging cross-learning collaborations to scale up or implement new strategies around one or multiple components.

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Appendices

Appendix A: Dataset used to assess transition to the High-Value Health System model

Indicators used to assess the 10 High-Value health System Components

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
1	Digital data					
1.1	Adoptability	Are digital data systems routinely used by providers?	There is not enough information to assess the use of digital data systems among providers	Yes, but only few providers (< 24%) use digital data systems	Yes, some providers (25%-49%) use digital data systems	Yes, most providers (> 50%) use digital data systems
1.2	Policy	Is there a national policy detailing ownership and how healthcare information may be collected, analyzed, and used?	Yes, there is an explicit policy	No, there is no such policy, plan, or strategic document		
1.3	Unification	Is there a unified national health record system	No, there is no such system	There is an explicit plan, policy, or strategy to develop such a system, but is not yet operational	Yes, there is a unified national health record system	
2	Analytics					
2.1	Real-time analytics	Is there a dedicated entity within the Ministry of Health to monitor and act on critical health system performance data in real-time?	No	There is an explicit plan, policy, or strategy to establish such an entity, but is not operational yet	Yes, there is an existing and operational entity	
2.2	Citizen empowerment	Is there transparency about prices and outcomes for healthcare goods and services for public scrutiny?	There is no health system performance dataset	Yes, there is an explicit plan or policy to create such a platform, but it is not overt operational	Yes, there is an operational platform that is available for public scrutiny	

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
3	Cost measurement systems					
3.1	Cost reporting	Do registries exist that enable providers to report cost data along the entire integrated care pathway?	No, there are no registries the enable cost reporting	Registries exist, but do not incorporate cost indicators	Registries exist and incorporate cost indicators for multiple diseases	
3.2	Cost integration	Are the major providers collecting cost data in their Electronic Health Record systems?	There is not enough information to assess the collection of cost data within provider's EHRs	Few providers (<24%) are collecting cost data within their EHRs	Some providers (25%-49%) are collecting cost data within their EHRs	Most providers (>50%) are collecting cost data within EHRs
3.3	Cost measurement incentives	Are the major payers mandating cost data across the across the integrated care pathway from providers	No, major payers are not requesting mandatory cost data across the integrated care pathway	Yes, one or more major payers are requesting mandatory cost data across the integrated care pathway		
4	Outcome measurement systems					
4.1	Outcome reporting	Do registries exist that enable providers to report outcomes data along the entire integrated care pathway?	There are no registries the enable outcomes reporting	Registries exist, but do not incorporate outcomes indicators	Registries exist and incorporate outcomes indicators for multiple diseases	Yes, registries exist and incorporate outcomes indicators for multiples diseases across the integrated care pathway
4.2	Outcome integration	Are the major providers collecting outcomes data in their Electronic Health Record systems?	There is not enough information to assess the collection of outcomes data within provider's EHRs	Few providers (<24%) are collecting outcomes data within their EHRs	Some providers (25%-49%) are collecting outcomes data within their EHRs	Most providers (>50%) recollecting outcomes data within their EHRs
4.3	Outcome measurement incentives	Are the major payers mandating outcome data across the across the integrated care pathway from providers	No, major payers are not requesting mandatory outcomes data across the integrated care pathway	Yes, one or more major payers are requesting mandatory outcomes data across the integrated care pathway		
5	Performance benchmarking					
5.1	Performance dataset	Is there a health systems performance dataset?	There is no health system performance dataset	Yes, it provides analytics on < 10 conditions	Yes, it provides analytics on > 11-20 conditions	Yes, it provides analytics on more than 21 conditions

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
5.2	Performance benchmarking	Is there a health systems performance benchmarking system	There is no health system performance benchmarking system	Yes, it provides analytics on < 10 conditions	Yes, it provides analytics on > 11-20 conditions	Yes, it provides analytics on more than 21 conditions
6	Integrated care pathways with bundled services					
6.1	Integrated care	Are major providers able to coordinate care and bundle services within an integrated care pathway?	No, providers are not bundling services at the medical condition level	Yes, providers are bundling services for less than 4 conditions	Yes, providers are bundling services for 5-9 conditions	Yes, providers are bundling services for more than 10 conditions
7	Value-based payment models					
7.1	VB payment implementation	Are major health system payers utilizing payment models emphasizing value with risk-reward alignment?	No, Fee-for-Service models predominate	There is a national or regional plan or policy to develop a bundled payment system but is not operational yet	Yes, providers are bundling services for more than 10 conditions	
7.2	VB risk adjustment	Are major payers reporting health outcomes that adjust for patient risk	No	Yes, risk-adjusted outcomes are reported by one or more major payers		
8	Value-based procurement					
8.1	Implementation	Are procurement processes purchasing goods from vendors based on value	No, procurement processes are not linked to outcomes	There is an explicit national or regional plan, policy, or strategic document to incorporate outcomes into procurement processes, but is not operational yet	Yes, value-based procurement implemented by one or more major providers	
9	Integrated provider networks					
9.1	Organization	Are the major providers integrated in networks to provide a continuous service in multiple levels of care across an integrated care pathway?	No, major providers are not integrated to provide healthcare services through the care cycle	There is an explicit national or regional plan, policy, or strategic document to reorganize delivery around the patient journey, but is not operational yet	Yes, most providers are integrated to provide healthcare services through the care cycle	
10	Strategic change program					

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
10.1	Strategy from a system perspective	Is there a national/federal organization within the health system that is responsible for health system transformation?	No, there is not a strategic change entity exists to lead on a strategic change program	There is an explicit national or regional plan, policy, or strategic document to develop an entity to lead and manage health system strategic change, but is not operational yet	Yes, there is an entity established to lead health system transformation	

Indicators used to assess system receptivity to the High-Value Health System model

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
1	Context					
1.1	Political	Does the government include the concept of value in its roadmap for the present and future of the health system?	No, there is not an explicit plan, strategy or policy or organize its health system around value	Yes, there is an explicit plan, strategy or policy or organize its health system around value		
1.2	Economic	How favorable is the fiscal envelope to invest in health system development?	Negative GDP growth; < 0%	Low GDP growth; 0.1 - 2%	Moderate GDP growth; 2 - 4.9%	Substantial GDP growth; >5%
1.3	Technological	Are citizens able to access the internet?	Few citizens (0-24%) have access to the internet	Some citizens (25-49%) have access to the internet	Most citizens (50-74%) have access to the internet	Near total (>75%) access to the internet
1.4	Epidemiological	Which are the major drivers of burden of disease that are shaping the future of the health system?	Mostly communicable disease burden	Transitioning to non-communicable disease	Communicable disease burden predominant	Multi-morbidity predominant
1.5	Legal	Is the concept of advancement in the right to health embedded in the nations' legal framework as an obligation of the State?	No explicit legal entitlement to the right for healthcare access enshrined in constitution, bill of rights or other binding legal document	Explicit legal entitlement to the right for healthcare access enshrined in constitution, bill of rights or another binding legal document		

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
2	Innovation Ecosystem					
2.1	Governance	Is there an entity responsible for the review, licensing and accreditation of how health technologies achieve system level impact?	There is no such entity and no explicit plan, strategy or policy to create such an institution	Explicit plan, strategy or policy to create such an institution	Institution exists and is operational	
2.2	Financing	Does the state explicitly fund programs and initiatives with the aim to research and design innovations to achieve value in healthcare?	No explicit budget to fund research and design innovations in healthcare	State provides funding to 1 or more programs, initiatives or strategic public private partnerships		
2.3	Partnerships	Are there strategic public private partnerships to design and introduce VBHC projects at scale?	No sPPP examples exist	There is a state agency to design and introduce PPPs	There are 1 or more sPPP projects	
2.4	Workforce and skills	Is there a platform that fosters multi-stakeholder collaboration and co-learning for HVHS?	No relevant association, collaborative platform or policy	Plan or policy exists to establish such a collaborative platform	Platform exists with at least 1 publicly accessible collaborative output	
4	Outcome measurement systems					
3.1	Broad-based support	Is there broad-based support for HVHS transformation among the major stakeholder groups	Low support	Minimal support	Moderate support	High support
5	Performance benchmarking					
4.1	Sustainability	How affordable is the current health system in relation to economic productivity?	Extremely high health expenditure as proportion of economic output; THE / GDP > 16%	High health expenditure as proportion of economic output; THE / GDP, 14--15.9%	Moderate health expenditure as proportion of economic output; THE / GDP > 12--13.9%	Reasonable health expenditure as proportion of economic output; THE / GDP < 11.9%

Indicators used to assess health system resilience

No	Analytic Component	Essential Survey Question	Scoring Guidelines			
			Score - 0	Score - 1	Score - 2	Score - 3
1	Context					
1.1	Acute shocks -- COVID-19	How did the system maintain cancer surgery in the context of COVID-19 induced disruptions in service delivery?	75-100% cancellation of total volume of oncology surgical services	50-75% cancellation of total volume of oncology surgical services	25-50% cancellation of total volume of oncology surgical services	0-25% cancellation of total volume of oncology surgical services
1.2	Chronic stressors -- Fiscal Austerity	How did cancer mortality rates change in relation to fiscal austerity and unemployment pressures, following the 2008 economic recession?	Mortality rates increased	Mortality rates were unchanged	Mortality rates decreased	

Appendix B: Existing frameworks that explore VBHC transformation from a system perspective

While there are many studies that examine value-based healthcare at an institutional level, few studies use a comparative systems lens to examine how value-based healthcare initiatives have been adopted and scaled across health systems in different countries. In this section we present three of the most relevant studies exploring value-based health care from a comparative international perspective.

Value-based healthcare: A Global Assessment

In 2016, The Economist Intelligence Unit (EIU) published the "Value-based healthcare: A Global Assessment" report as one of the first attempts to assess the state of value-based healthcare (VBHC) alignment in 25 countries from Asia, Europe, the Middle East, and North Africa, Sub-Saharan Africa, Latin America, and North America. The research team explored and evaluated the presence of the enabling infrastructure, outcomes measurement, and payment systems that support value-based care.

EIU developed a qualitative framework of VBHC components and was structured around four key domains, comprising the following 17 qualitative indicators (Table 2, 3). These domains were evaluated using standardized scoring guidelines to arrive at binary scores of yes/no, or numbered scores of 0-2, 0-3, or 0-4. The final scores were aggregated into domain scores and overall composite scores from 0 to 100, with each domain and indicator equally weighted (Table 4).

Table 6: Qualitative indicators used in the EIU Framework

Domain	Indicator name	Unit
D1. Enabling context, policy, and institutions for value in healthcare	I1. Health coverage of the population	0-4
	I2. High-level policy or plan	Y/N
	I3. Presence of enabling elements for value-based healthcare	0-3
	I4. Other stakeholder support	Y/N
	I5. Health professional education and training in VBHC	0-2
	I7. Existence and independence of health technology assessment (HTA) organization(s)	0-2
	I7. Evidence-based guidelines for healthcare	0-4

Domain	Indicator name	Unit
	I8. Support for addressing knowledge gaps	0-2
D2. Measuring outcomes and costs	I1. National disease registries	0-4
	I2. Patient outcomes data accessibility	0-2
	I3. Patient outcomes data standardization	0-2
	I4. Data collection on patient treatment costs	0-3
	I5. Development of interoperable Electronic Health Records (EHRs)	Y/N
D3. Integrated and patient-focused care	I6. National policy that supports organizing health delivery into integrated and/or patient-focused units	Y/N
	I7. Care pathway focus	0-2
D4. Outcome-based payment approach	I8. Major system payer(s) promotes bundled payments	0-3
	I9. Existence of mechanism(s) for identifying interventions for de-adoption (disinvestment)	Y/N

Source: EIU

Table 7: Scoring system

	Overall study	Domain 1	Domain 2	Domain 3	Domain 4
Score range	Alignment with VBHC	Enabling context, policy and institutions for value in healthcare	Measuring outcomes and costs	Integrated and patient-focused care	Outcome-based payment approach
0-49.99	Low	Low	Low	Low	Low
50-74.99	Moderate	Moderate	Moderate	Moderate	Moderate
75-89.99	High	High	High	High	High
90-100	Very High	Very High	Very High	Very High	Very High

Source: EIU

The EIU also included quantitative background indicators from multiple sources listed as follows:

Table 8: Quantitative indicators used in the EIU framework

Indicator	Unit	Source
GDP (level)	US\$ bn	EIU, 2014
GDP per capita	US\$	EIU, 2014
Disposable income per head	US\$	EIU, 2014
Total health expenditure (THE) as % of GDP	%	WHO, 2013
General government expenditure on health as a % of total expenditure on health	%	WHO, 2013
Out-of-pocket expenditure as a percentage of private expenditure on health	%	WHO, 2013

Human Development Index (category)	Score	UNDP, 2014
Life Expectancy, total	Years	EIU, 2014
Population	Number	EIU, 2014
Doctors per 1000	Number	EIU, 2013
Hospital beds per 1000	Number	EIU, 2012
Cost of doctors visit (WWCOL)	LCU	Worldwide Cost of Living Survey, EIU, 2014
Health Outcomes Index	Score	EIU, "Health outcomes and cost: A 166-country comparison", 2014
Health spend per head (US\$)	US\$	EIU, "Health outcomes and cost: A 166-country comparison", 2014
Cost per outcome point (US\$)	US\$	EIU, "Health outcomes and cost: A 166-country comparison", 2014
Health Outcomes: Tier	Tier	EIU, "Health outcomes and cost: A 166-country comparison", 2014

Source: EIU

Results

The study results of the EIU study demonstrate that while the concept of VBHC is still in its early stages of adoption, there is substantial room for improvement in many countries. Most of the countries evaluated had either low or moderate overall alignment with VBHC, reflecting the newness of the concept and a lack of coordinated strategies. However, a few countries, such as Sweden and the UK, had high alignment with VBHC. The study also shows that substantial variation in the adoption of specific VBHC components across all countries, irrespective of level of economic development, and emphasized the importance developing an understand of the core components of VBHC and how to evaluate countries based on their move towards a more value-based, patient-centric model.

Table 9: Results from the EIU study

Country	Overall	Enabling context, policy and institutions for value in healthcare	Measuring outcomes and costs	Integrated and patient-focused care	Outcome-based payment approach
Australia	Moderate	Moderate	Low	Moderate	Very High
Brazil	Moderate	Moderate	Low	Moderate	High

Country	Overall	Enabling context, policy and institutions for value in healthcare	Measuring outcomes and costs	Integrated and patient-focused care	Outcome-based payment approach
Canada	Moderate	Low	Low	Moderate	Very High
Chile	Moderate	High	Low	High	Very High
China	High	Low	Low	High	Very High
Colombia	Low	Low	Moderate	Low	Low
Egypt	Low	Low	Moderate	Low	Moderate
France	Low	Low	Moderate	Low	Low
Germany	Low	Low	Very High	Low	Low
India	Low	Low	Low	Low	Moderate
Indonesia	Moderate	Moderate	Low	Low	Low
Japan	High	Moderate	Moderate	Low	Low
Mexico	Moderate	Moderate	Low	Low	Low
Netherlands	Moderate	Moderate	Moderate	Low	Low
Nigeria	High	Very High	Low	Low	Low
Poland	Low	Moderate	Moderate	Moderate	High
Russia	Low	High	High	High	High
South Africa	Moderate	Moderate	High	Very High	High
South Korea	Moderate	Low	Moderate	Moderate	Very High
Spain	Moderate	Very High	High	Low	High
Sweden	Low	Low	Low	Low	Moderate
Türkiye	Low	Low	Low	Low	Moderate
United Arab Emirates	Moderate	Low	Low	Moderate	High
United Kingdom	Moderate	Moderate	Low	Moderate	Moderate
United States	Low	Low	Low	Low	Moderate

Source: EIU

Implementing Value-Based Health Care in Europe: Handbook for Pioneers

In 2020, the EIT Health—a *knowledge and innovation community* of the European Institute of Innovation and Technology (EIT) published the "Implementing Value-Based Health Care in Europe: Handbook for Pioneers" report in which the group proposed a framework to analyze the implementation and scaling of high-value care in Europe applied in 10 case studies. The study performed 246 semi-structured interviews with local, regional, and national value-based healthcare leaders across 22 European health systems. The case studies were selected using an identification method that included a systematic literature review, 32 visits, and interviews.

The EIT Health study designed a Value-Based Health Care Implementation Matrix to support healthcare organizations in implementing a value-based strategy. The matrix has nine qualitative stages organized into five dimensions described in the first chapter of the report:

Table 10: Value-Based Health Care Implementation Matrix

Dimensions	Description	Stages	Description
		1. Condition	Identifies a patient group
Partnering	Refers to aligning internal forces and forging collaborations with external partners	2. Internal forces	Consists of mobilizing a core team, involving patients and making board support visible
Recording	Refers to measuring processes and outcomes through a scorecard and data platform	3. Scorecard	Defines processes, costs, and outcome indicators while applying case-mix adjustment
		4. Data platform	Enables data capture, interface interactions, data analytics and access to data
Comparing	Refers to benchmarking teams through internal and external reports	5. Benchmarks	Provide transparent outcome comparisons across providers
Rewarding	Refers to investing resources and creating outcome-based incentives	6. Investments	Involve human and financial resources mobilized for implementation
		7. Incentives	Create outcome-based payments and behavioral encouragements
Improving	Refers to organizing improvement cycles through collective learning	8. Learning community	Relies on improvement cycles, training programs and research projects

Dimensions	Description	Stages	Description
Partnering	Refers to aligning internal forces and forging collaborations with external partners	9. External collaborations	Refers to partnering with insurers, life science companies and health authorities

Source: EIT

Results

The second chapter presents 10 case studies from different organizations, including private and public providers, networks of independent caregivers, health systems, third-party quality registries, and private payers. The case studies explore each organization through the five dimensions and nine stages and close with brief highlights.

Table 11: Country cases studied

Case	Country	Organization
Santeon	The Netherlands	Private hospitals
Martini-Klinik	Germany	Condition specific provider
Diabeter	The Netherlands	Chronic care outpatient clinic
Basel University Hospital	Switzerland	Public hospitals
New Karolinska Hospital	Sweden	Public hospitals
Uppsala Academic Hospital	Sweden	Public hospitals
GLA:D	Denmark	Network of independent caregivers
NHS Wales	United Kingdom	Health system
The Netherlands Heart Registry	The Netherlands	Third-party quality registry
Menzis	The Netherlands	Private payer

Source: EIT

BCG value-based healthcare maturity-assessment framework

In 2011, The Boston Consulting Group presented an assessment of 12 health systems' efforts to adopt and institutionalize value-based health care: Australia, Austria, Canada, Germany, Hungary, Japan, the Netherlands, New Zealand, Singapore, Sweden, the U.K., and the U.S.

The firm proposed a framework comprised of two broad dimensions (top-down and bottom-up) that encircle four key success factors for implementing a value-based approach, and each is evaluated using specific criteria (35 in total) that are scored between 1 (low readiness)–5 (best practices) (Table 12). BCG state that its framework

was developed through previous research, medical literature review, and 139 interviews with national and international experts. Each criterion was scored independently by the different BCG local practices using national documents and the registries for 12 target conditions. External local experts were invited as reviewers to validate the results.

Table 12: BCG value-based healthcare maturity-assessment framework

Dimensions	Key Success Factors	Specific criteria	Unit
National enablers (top-down)	Clinician engagement	Do clinicians support collection and use of outcome data at a national level?	1-5
		Are outcome results compared, reported, and made available to the public?	1-5
		Do clinicians support the use of collected data to measure and report outcomes?	1-5
		Does the registry have an independent governance body?	1-5
	National infrastructure	To what extent has IT been adopted by clinicians?	1-5
		Does interoperability exist across systems?	1-5
		Do national standards exist for terminology and measurement, and, if so, are they applied?	1-5
		Are there national standards or frameworks for consent?	1-5
		Does each patient have a unique personal identifier that exists across the health system?	1-5
		Can the cost of treatments be linked to clinical events?	1-5
		Can the cost of each procedure be linked to the cost for the relevant event?	1-5
		Is health care quality part of the public discourse?	1-5
		Are performance data used to determine reimbursements?	1-5
		Does the government invest in collecting outcome data?	1-5
		Does the government provide strategic direction for outcomes on the basis of measurements?	1-5
		Disease registry data and use (bottom-up)	Data quality
How comprehensively are patient perspectives recorded?	1-5		
How comprehensively are activities, processes, and treatments recorded?	1-5		
How comprehensive and appropriate are patient risk adjustments?	1-5		
How comprehensively are provider details captured?	1-5		
What proportion of the patient population is represented?	1-5		
How old is the registry?	1-5		
Is it possible to track trends related to specific patients within a single registry?	1-5		
How are data captured and databases populated?	1-5		
Are there standards for data representation and clinical terminology coding?	1-5		
What controls are in place to ensure data integrity?	1-5		

Data use	Do outcome data affect guidelines for standards of care?	1-5
	Do outcomes influence licensing and accreditation at the doctor or hospital level?	1-5
	To what extent is there reporting to individual clinicians?	1-5
	If reporting occurs, how long does it take for the results to be made available to clinicians?	1-5
	Are provider reimbursements influenced by outcomes?	1-5
	Are supplier reimbursements influenced by outcomes?	1-5
	To what extent is the registry used as a source of academic reporting and research in international peer-reviewed journals?	1-5
	To what extent is there reporting to the public?	1-5
	Do health quality and outcome insights influence policymaker or payer decisions?	1-5

Sources: BCG

Results

The consulting firm evaluated each country by averaging the score of each key success factor and organizing an overall readiness score built from the unweighted average of all criteria. The results are presented in a table that uses a color code to grade each factor in levels between 1–5 (although the level ranges are not mentioned) (Table 13). The study identified clinical engagement as the highest-graded factor among the 12 countries analyzed, followed by the national structure factor from the national enablers dimension. Most countries struggled with the data use factor, with Sweden being the only country in level 3, eight countries in level 2, and Germany, Hungary, and the Netherlands in the lowest places in level 1.

The BCG report provided valuable insights into understanding the implementation of a value-based perspective in the health system. The document briefly describes multiple initiatives that were going through a developing phase, others that showed solid local experience that could be scaled up to the national level, and others that set interesting usage integrated with following outcomes and improving payment mechanisms. The document closes by highlighting the role of government in facilitating a transition to value-based health care. The study also mapped each country in a frontier graph using the two dimensions in each axis as shown below (Diagram 1)

Table 13:

Key factors	Germany	Hungary	Netherlands	United States	Austria	Japan	New Zealand	Australia	United Kingdom	Canada	Singapore	Sweden
Clinician engagement	2.5	2.4	2.3	2.6	2.6	3.4	2.9	3.2	3.8	3.6	3.5	4.9
National infrastructure	2.4	2.3	3.0	2.7	3.1	2.8	3.3	2.4	3.1	3.6	3.7	3.6
Data quality	2.1	2.3	1.7	2.0	2.4	2.4	2.6	3.0	3.0	3.0	3.6	3.9
Data use	1.4	1.4	1.4	1.6	1.6	2.3	1.7	2.2	2.3	2.0	2.0	2.7
Overall readiness	2.0	2.1	2.1	2.2	2.4	2.6	2.6	2.6	2.9	3.0	3.2	3.6

Source: BCG

Appendix C: Semi-structured interview template

The interviews will be used to complement the survey responses by looking to further explore specific answers. The research team will be conducting semi-structured interviews that could include some of the following questions, among others, in which variables X and Y will vary depending on the data generated from the survey that will need further elaboration:

1. *How would you describe the interpretation of your country's health system to the concept of value generation in health systems?*
2. *What does value mean to you in the context of health systems?*
3. *In your view, what are the major areas of investment in health systems that could help drive the value agenda?*
4. *Which are the major public or private institutions and/or leaders that are driving the transformation of your country's health system?*
5. *Which are the leading international or national institutions and/or experts that are influencing the transformation of your country's health system?*
6. *Which has been the most challenging barriers to implement plan, strategies, or programs designed to support the health system's transformation in your country?*
7. *So far, which has been the most prominent results in your country's path towards a value-based health system?*
8. *Is there any ongoing cooperative strategy between your country's health system and any foreign country, multilateral organization, or international partner that is supporting your country to transition to a high-value health system?*
9. *Could you provide further details about your response on question X of section Y?*
10. *Is there any example of the implementation of X in your country's health system that you would like to highlight, and that can become a case study to be shared in the report?*
11. *According to information we have gathered from your country's health system, we have learned X. Would you agree that...?*
12. *Are there any publicly available sources that the report's readers could use to learn more about your country's experience with X?*

Appendix D. Case Studies

G20 Status	Country	Case	Major HVHS Component Emphasized	Description
G20 members	Argentina	Plan Sumar	C7. Value-based payment models	The Plan SUMAR is a social plan in Argentina that provides health services to people who are not beneficiaries of any other social plan. It covers different groups of population, such as pregnant women, children, adolescents and adults up to 64 years old and finances various health interventions, such as cancer prevention, sexual health and noncommunicable diseases prevention using a performance-based financing mechanism between the national government and provinces.
	Australia	National Hospital Cost Data Collection Reports	C3. Cost measurement systems	The Australian National Hospital Cost Data Collection (NHCDC) Reports are annual publications that present the results of a data collection that matches patient activity with hospital costs.
		Value Based Oral Health Care Initiative	C4. Outcome measurement systems	Dental Health Services Victoria in Australia provides public dental services to over 500,000 people annually. They have implemented a value-based healthcare framework, resulting in discrete projects to identify variation, measure costs and outcomes, and improve patient experience and culture. By utilizing principles of value-based care and taking a system-wide approach, the initiative is improving patient outcomes and experiences.
	Brazil	Hospital Israelita Albert Einstein	C7. Value-based payment models	The Albert Einstein Hospital has implemented a value-based model by no longer charging for individual consultations, imaging, lab tests, or surgeries. Instead, the hospital charges for the entire care cycle based on clinical results, patient satisfaction, and quality of life achieved. This decision applies to dozens of public and private health centers managed by the hospital system.
	Canada	Canadian Institute for Health Information, for instance (PREMs)	C4. Outcome measurement systems	Canada use Patient-reported experience measures (PREMs) like the Overall Hospital Experience to collect data about a patient's complete experience during their recent hospital stay.
		Southlake Regional Health Center in Ontario	C8. Value-based procurement	The Southlake Regional Health Centre (SRHC) is a hospital in Ontario that has adopted value-based procurement in its Regional Cardiac Program to achieve better patient outcomes and experience and adopting innovative solutions and technologies.
	China	People's Hospital of Yiyang County in Henan Province	C7. Value-based payment models	The People's Hospital of Yiyang County adopted a value-based payment model, which incentivizes patients for completing treatment based on evidence-based clinical pathways for their medical condition or illness. As a result, the hospital has reduced unnecessary tests and procedures, enhanced the quality of care and patient satisfaction, and lowered the costs per case.
	France	UniHA	C7. Value-based payment models	In 2019, UniHA implemented a value-based procurement tender to address the issue of hypothermia during surgical procedures, which affects 60% of patients despite 90% being warmed. UniHA utilized patient temperature as a CROM indicator during the competitive dialogue and ultimately selected 3M's offer with a 4-year contract that includes an outcome target of 80% of patients at normothermic temperature post-surgery.

G20 Status	Country	Case	Major HVHS Component Emphasized	Description
	Germany	'Gesundes Kinzigtal' program	C9. Integrated provider networks	Gesundes Kinzigtal is a program that aims to improve health care and reduce costs for people in Kinzigtal, a region in southwest Germany. It is a joint venture between a network of physicians and a health care management company. It has contracts with two non-profit sickness funds to integrate health and care services for their insured populations ¹² . The program offers enhanced care coordination, access to physicians outside normal hours, discounts for gym memberships and other benefits.
	India	Ayushman Bharat program	C9. Integrated provider networks	Ayushman Bharat is a national initiative launched in 2018 to provide health coverage to poor and vulnerable families in India. It has two components: a health insurance scheme for secondary and tertiary care hospitalization, and a network of health and wellness centers that offer primary health care services.
	Indonesia	Jaminan Kesehatan Nasional	C7. Value-based payment models	The Indonesia's national health insurance program (JKN) has implemented pay-for-performance model for maternal and neonatal care since 2016. The P4P indicators include antenatal care visits, delivery by skilled birth attendants, postnatal care visits, neonatal resuscitation, exclusive breastfeeding, and immunization
	Italy	Nuove Reti Sanitarie	C9. Integrated provider networks	Nuove Reti Sanitarie (New Health Networks) is a service developed by Lombardy Region in Italy to provide integrated care for patients with chronic conditions. It uses telemedicine and telemonitoring technologies to connect patients, caregivers, general practitioners, specialists, and hospitals. The service aims to improve patients' quality of life, reduce hospitalizations, and optimize health resources.
	Japan	Japan 2035	C10, Strategic change and innovation ecosystem	Japan's 2035 vision includes the implementation of a value-based health system. The objective is to maximize the value of current resources by incorporating value-based improvements in quality and efficiency to promote better care at lower costs.
	Republic of Korea	Benefits Information Analysis System	C2. Analytics	The Benefits Information Analysis System supports the analysis of trends in the frequency and costs of medical interventions both within and outside the National Health Insurance coverage. The system can detect abnormal trends in service provision, generate statistics to promote public health.
	Russia	Cataract Project Health Outcomes	C4. Outcome measurement systems	The S. Fyodorov Eye Microsurgery Federal State Institution led a project on cataract surgery with 2,500 patients from four branches and private hospitals to collect information about patient health outcomes. Russian authorities ran similar value-based projects for other priority conditions such as inflammatory bowel disease, diabetes, and coronary artery disease.
	Saudi Arabia	Vision 2030 program	C10, Strategic change and innovation ecosystem	Vision 2030 is a long-term development plan launched by Saudi Arabia in 2016. One of the key areas of focus in Vision 2030 is healthcare, and the program includes several initiatives aimed at improving the health and well-being of the Saudi population.

G20 Status	Country	Case	Major HVHS Component Emphasized	Description	
	South Africa	Discovery Same-day Discharge Arthroplasty (SDDA)	C4. Outcome measurement systems	In August 2021, the pilot program of Discovery Same-day Discharge Arthroplasty (SDDA) was introduced, providing numerous potential advantages for suitable patients. These benefits encompass accelerated recovery and reintegration into daily life, better patient contentment, and decreased hospital resource utilization.	
	United Kingdom	Quality and Outcomes Framework (QOF)	C4. Outcome measurement systems	The Quality and Outcomes Framework (QOF) is a system that rewards GP practices in the UK for providing quality care to their patients. It covers various aspects of primary care, such as chronic disease management, public health and patient experience.	
	United States of America	Blue Cross Blue Shield of Michigan	C4. Outcome measurement systems	Value Partnerships is a program by Blue Cross Blue Shield of Michigan (BCBSM) that aims to improve health care quality and lower costs by collaborating with providers and hospitals across the state. It consists of various initiatives that focus on different aspects of health care delivery, such as hospital pay-for-performance, physician group incentive program, value-based reimbursement, and collaborative quality initiatives.	
	European Union	Europe	Health Outcomes Observatory Project (H2O)	C4. Outcome measurement systems	The Health Outcomes Observatory Project (H2O) is a European initiative that aims to collect and use patient-reported outcomes and preferences to improve health care quality and decision making. It involves a partnership between public and private sectors, including patients, health care providers, researchers, regulators, payers, and industry.
		Estonia	e-Health Initiative	C1. Digital Data	Estonia's e-health initiative is a program that aims to provide innovative and convenient e-services for health care delivery and management. It started in 2008 with the creation of a state health care information system that allows online access to patient data. Since then, it has expanded to include new features, such as e-prescriptions, digital registration, telemedicine, personal medicine, and health information exchange.
		Portugal	Value-based healthcare in cataract surgery	C5. Performance benchmarking	In 2019, the Health Cluster Portugal (HCP) launched the value-based healthcare in cataract surgery initiative with the aim of designing a rigorous and credible benchmarking system, focused on health outcomes for patients. The initiative involves collaboration with 12 national hospitals and analyses the results of different ophthalmic centers, verifying efficiencies and cost rationalization without loss of quality in cataract surgery.
		Denmark	Public-private Partnership for patients with non-clear celled renal cancer	C4. Outcome measurement systems	Roche, the Herlev Gentofte Hospital and Foundation Medicine Inc partnered in 2018 to compare treatment outcomes and costs for non-clear cell renal cancer patients in Denmark.
	Egypt	Egyptian Authority for Unified Procurement, Medical Supply, and Technology Management	C8. Value-based procurement	Egypt's Vision 2030 has a strong emphasis on achieving universal health coverage, prioritizing preventive care, and improving data collection. To achieve these goals, the Pricing Committee from The Egyptian Authority for Unified Procurement, Medical Supply, and Technology Management has adopted a value-based pricing model when negotiating with manufacturers. The General Authority for Healthcare Accreditation and Regulation of Egypt (GAHAR) is also involved in ensuring that healthcare providers meet certain quality standards.	

G20 Status	Country	Case	Major HVHS Component Emphasized	Description
	Singapore	Diabeter model	C7. Value-based payment models	Diabeter is a Dutch clinic network that specializes in type one diabetes care. It has been recognized for its value-based healthcare approach, which focuses on improving outcomes and value for patients while lowering costs.
		Healthier SG	C6. Integrated care pathways with bundled services	Healthier SG is a national initiative in Singapore aimed at promoting healthy living and preventing chronic diseases. Launched in 2017, it is a comprehensive and integrated approach to improving the health and well-being of Singaporeans with a special focus on primary care and integration across different healthcare settings.
		Value-driven care	C4. Outcome measurement systems	The National University Health System (NUHS) is an Academic and Regional Health System in Singapore, delivering Value-Driven Outcomes (VDO) through a data sharing system. NUHS shares quality and cost indicators with healthcare professionals to identify cost-effective medical practices, resulting in reduced needless deviations and improved outcomes in terms of cost and quality.
	Spain	Catalan Information System Master Plan	Component 10: Strategic change and innovation ecosystem	The Catalan Information Systems Master Plan aims to steer the development of information and communication technologies and systems for the upcoming years. The primary objective is to advance and improve the Catalan Healthcare System to attain the targets set by the 2016-2020 Healthcare Plan.
		Cruces Hospital	C4. Outcome measurement systems	Cruces Hospital in Spain utilizes the International Consortium for Health Outcomes Measurement (ICHOM) guidelines to treat a range of illnesses, including prostate cancer. By adhering to ICHOM guidelines, the hospital aims to provide a more patient-centered approach through the collection of standardized clinical data and patient-reported information. The initiative has proved successful in decreasing costs and reducing symptoms such as urinary incontinence in patients with prostate cancer.
		Sant Pau	C8. Value-based procurement	The Catalan Ministry of Health, in partnership with the Hospital de la Santa Creu I Sant Pau, implemented a value-based procurement model to provide comprehensive care for patients with automated implantable cardioverter defibrillator (AICD), including cardiac re-synchronization, with the aim of reducing follow-up visits, introducing remote monitoring, and including health outcomes to reduce costs.
	United Arab Emirates	Abu Dhabi Quality driven payments	C7. Value-based payment models	In Abu Dhabi, a pay-for-performance scheme was introduced in 2011 for diabetes care providers. The scheme rewards providers based on their performance on six clinical indicators: HbA1c testing, HbA1c control, blood pressure control, cholesterol control, eye exam and foot exam. The payment is calculated as a percentage of the capitation fee paid to primary care providers.

Source: Authors