WORLD ECONOMIC FORUM

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Insight Report

Value in Healthcare
Accelerating the Pace of Health System Transformation

Prepared by the World Economic Forum,
in collaboration with Boston Consulting Group (BCG)

December 2018

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Foreword

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The World Economic Forum's system initiative "Shaping the Future of Health and Healthcare" aims to provide answers to the question: How can the world deliver affordable and quality healthcare for nearly 9.7 billion people by 2050?

In a world characterized by an ageing population, more and more people suffering from long-term chronic disease, and ever-increasing healthcare costs, improving healthcare value by delivering better health outcomes to patients at lower costs is a critical imperative. We have a long journey ahead in building sustainable heath systems globally that put people at the centre, and we believe we have a collective responsibility to do so.

For the past three years, a critical source of new thinking and research on how to improve healthcare value has been the World Economic Forum's Value in Healthcare project. Since its launch in July 2016, the project has laid the foundation for health system transformation by defining the critical components of a value-based health system and by emphasizing the centrality of multi-stakeholder collaboration to achieving value-based system transformation. In this report, the third and final installment in the Value in Healthcare report series, we introduce three concrete steps for accelerating the pace of value-based transformation in health systems around the world: 1. A user guide for policymakers and private sectors stakeholders that synthesizes key learnings from efforts around the world to transform health systems towards value; 2. A practical roadmap to guide health informatics standardization, improving our ability to leverage the powerful force of healthcare data towards medical research and real-world evidence, clinical decision-making, patient empowerment and ultimately, improvement in care outcomes; 3. A global coalition that can foster collaboration and continue to drive the agenda for value-based health systems.

We are at a critical turning point for value in healthcare globally. Stakeholders in the sector need to codify and disseminate best practices, develop the global enablers for value-based healthcare, and create new platforms for deeper collaboration. The World Economic Forum and its partners remain committed to the value-based transformation of the world's health systems, even as the Value in Healthcare project comes to a close in its current format. At the January 2019 annual meeting in Davos, we will be launching the Global Coalition for Value in Healthcare, a collaboration between the World Economic Forum and leading healthcare stakeholders to continue promoting and driving global health-system transformation. You can read about the coalition in the concluding section of this report.

The commitment of the Value in Healthcare project's Executive Board, Steering Committee and our Knowledge Partner, Boston Consulting Group, has been critical to the success of our work. We thank them and all the other stakeholders that have joined us on this important journey. We are excited about what we can continue to achieve together.

Preface
by The Executive Board, Value in Healthcare project

In July 2016, the World Economic Forum, in collaboration with Boston Consulting Group (BCG), launched the Value in Healthcare project. The goals of the project were:

- To develop a comprehensive understanding of the key components of value-based health systems
- To draw general lessons about the effective implementation of value-based healthcare by codifying best practices at leading healthcare institutions around the world
- To identify the potential obstacles preventing health systems from delivering better outcomes that matter to patients, and at lower cost
- To define priorities for industry stakeholders to accelerate the adoption of value-based models for delivering care

In the nearly two-and-a-half years since its launch, the Value in Healthcare project has: documented the experience of leading value-based innovators; developed a comprehensive framework describing the necessary components of a value-based health system; launched local initiatives in value-based transformation at regional health systems in the metropolitan area of Atlanta, Georgia, in the US, and in Ontario, Canada; and explored models for the development of key enablers of value-based healthcare – in particular, health informatics. These initiatives have been described in detail in two previous reports: "Value in Healthcare: Laying the Foundation for Health System Transformation" (April 2017) and "Value in Healthcare: Mobilizing Cooperation for Health System Transformation" (January 2018).

In this, our third and final report, we focus on three initiatives for accelerating the value-based transformation of global health systems.

- **A "user's guide" to health system transformation**, based on our review of leading transformation efforts around the world and our experience in launching the Atlanta and Ontario initiatives
- **A "roadmap" for global health-informatics standardization**, which sets out a comprehensive agenda for accelerating the development of global health-informatics standards, including a proposed "digital health bill of rights" that puts patient empowerment at the centre of informatics standardization efforts
- **A new public-private coalition for value in healthcare**, known as the Global Coalition for Value in Healthcare and initially hosted by the World Economic Forum, which will serve as a global platform to share learnings, develop effective best practices, and guide the development of value-based health systems worldwide

The value-based transformation of health systems is a critical imperative both for addressing patient needs and for ensuring the long-term sustainability of the global healthcare industry. The Value in Healthcare project has moved the ball forward and the members of the Executive Board are committed to sustaining that progress through the Global Coalition for Value in Healthcare.

In conclusion, we would like to acknowledge the dedication and contribution of the many healthcare leaders in our Steering Committee as well as the vision and ambition of the Value in Healthcare project team. (For a list of participants, see the Acknowledgements at the end of this document.) As an industry, we have embarked on an exciting transformation journey. As industry leaders representing both the public and private sectors, we look forward to playing an active leadership role in that journey in the years ahead.

Value in Healthcare – Today and Tomorrow

There is growing consensus among stakeholders in the $8 trillion global healthcare sector that the industry faces a serious value problem. Despite decades of efforts to control spending, costs continue to rise at roughly double the rate of GDP growth in most developed countries.[1]

In addition, there are wide variations in health outcomes across hospitals, regions and countries, with no clear causal relationship between money invested and health delivered.[2] The national health systems that spend the most money do not necessarily provide the best care.[3] And there is considerable evidence that a substantial portion of healthcare spending is, quite simply, wasted on avoidable medical complications, medically unnecessary treatments or administrative inefficiencies.[4]

In 2016, the World Economic Forum launched the Value in Healthcare project to explore innovative ways to address healthcare's value problem through an approach known as *value-based healthcare*. According to this approach, value is defined as the health outcomes achieved for defined population segments (for example, all individuals suffering from a particular disease or belonging to a specific risk group) for a given cost. And the goal of a value-based health system is to continuously improve the ratio of outcomes to costs through the provision of increasingly targeted, segment-specific clinical interventions.[5]

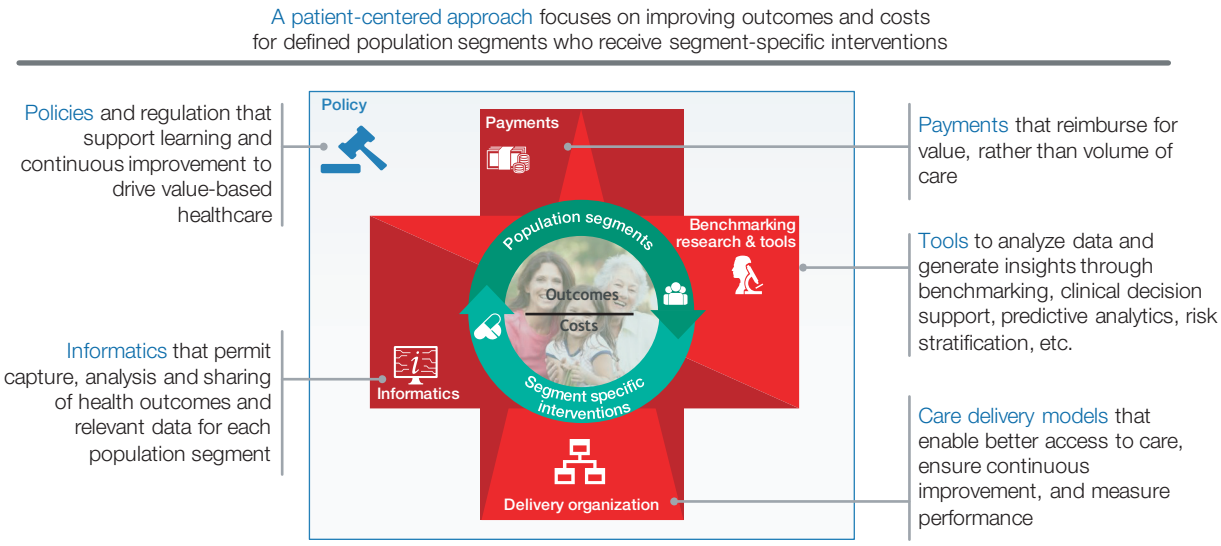
Since then, the project has documented the experience of leading value-based innovators; developed a comprehensive framework that describes the necessary components of a value-based health system (see Figure 1); launched initiatives in value-based transformation at regional health systems in the metropolitan area of Atlanta, Georgia, in the US, and in Ontario, Canada; and explored models for the development of key enablers of value-based healthcare – in particular, health informatics.[6]

Barriers to progress

The Value in Healthcare project has articulated a vision for the value-based transformation of health systems globally. Realizing that vision, however, is a complex challenge. Despite the considerable progress by leading stakeholders around the world, there remain significant barriers to value-based healthcare that are embedded in existing health systems.

Take, for example, the systematic tracking of health outcomes for all patients who suffer from a given disease or who belong to a specific risk group, which is a cornerstone of any value-based health system. National disease registries and international organizations such as the International Consortium for Health Outcomes Measurement (ICHOM) have made enormous progress in defining which outcomes to track.[7] But the lack of global standards for health informatics and the challenges

Figure 1: The Value in Healthcare Framework for a Value-Based Health System



Source: BCG analysis

associated with integrating outcomes tracking in routine medical practice make it difficult for practitioners to routinely compare outcomes data across providers for benchmarking purposes.

Another barrier to progress is the growing complexity of healthcare. This complexity is, in part, a product of the explosion in biomedical knowledge in recent decades. That new knowledge has greatly increased our understanding of health and disease, and led to important new diagnostic and therapeutic alternatives. But it has also led to increased specialization. For all the benefits of specialization, it has contributed to the fragmentation of care delivery and a dilution of accountability, making it difficult for practitioners to work together to develop a holistic perspective on a specific patient group or to create more integrated care pathways.

This complexity is exacerbated by the traditional compartmentalized structure of the healthcare industry. The existence of relatively independent sectors within the industry – providers, payers, pharmaceutical companies, medtech suppliers, health information companies, etc. – also makes it difficult to focus the health system on outcomes delivered to patients. In a world where chronic disease is becoming increasingly prevalent and a major source of healthcare costs, many of the interventions that are most important for preventing chronic disease (for instance, efforts to address the socioeconomic determinants of health or patient lifestyle choices) are not typically considered as integral to medical care. Budgets are split up across multiple payers and government agencies, creating obstacles to coordination, planning and more rational use of resources. The result: systematic underinvestment in prevention and public health.

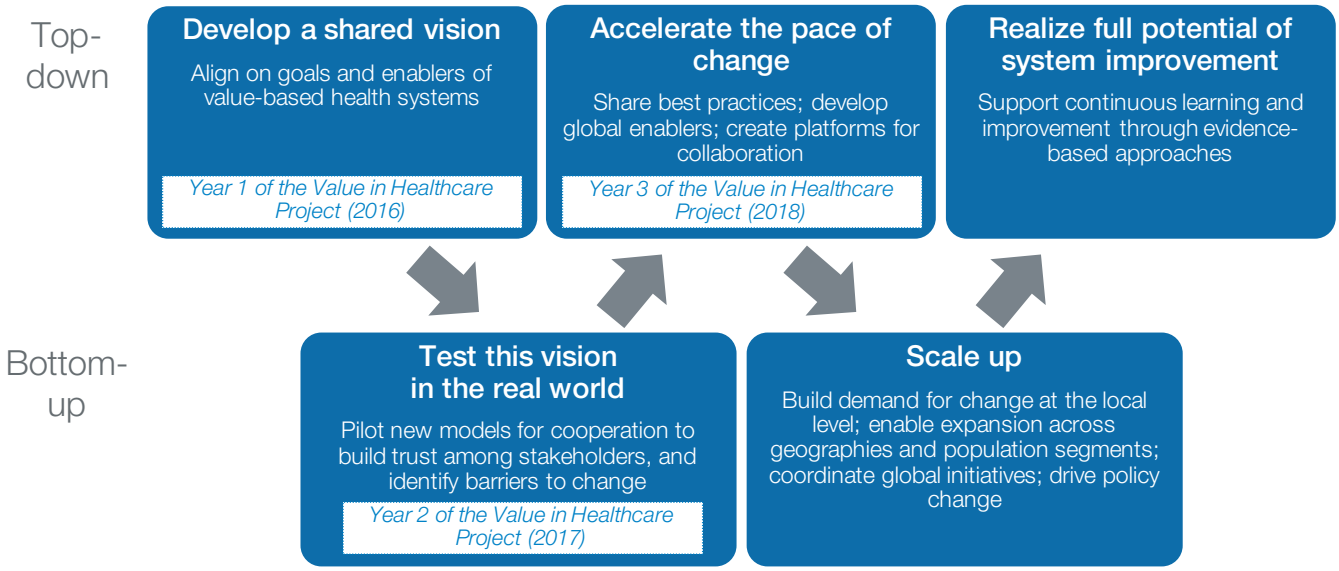
Perhaps the biggest obstacle, however, is that misaligned incentives across the industry have contributed to a major collective action problem. In theory, all stakeholders in the healthcare sector have a shared interest in the long-term sustainability of the system and, therefore, in focusing on value. In practice, however, they all face risks in making the transition to value-based healthcare. Confronted with growing cost pressures and industry disruption, the natural impulse for any individual organization is to "keep its head down" and focus conservatively on its immediate interests and current business model. This collective action problem and lack of trust is made worse by the absence of institutional forums where leaders and practitioners can come together, learn from each other and develop a shared understanding of healthcare's value problem and the goals and shared vision to address it.

Accelerating the pace of change

Given these barriers to progress, how can health systems around the world accelerate the pace of change towards value-based healthcare? The short answer is: by increasing the amount and frequency of cooperation among stakeholders across the entire healthcare sector. The transformation of regional or national health systems cannot be achieved by individual stakeholders – including individual national governments – working in isolation. Rather, it requires a broad range of stakeholders, both public and private, to work together in order to make a coordinated collective impact.[8] Recent research on complex adaptive systems has demonstrated that, in periods of disruption, successful adaptation depends on increasing the scope of cooperation across the entire system.[9]

Building the necessary levels of trust and the institutional mechanisms for effective cooperation in the global healthcare sector will require both top-down and bottom-up initiatives (see Figure 2).

Figure 2: Health System Transformation Requires Both Top-Down and Bottom-Up Initiatives



Source: BCG analysis

The starting point is to articulate a compelling **shared vision** of the future that serves to align stakeholders in terms of the goal of improving patient value. This was the focus of the first year of the Value in Healthcare project, during which we developed our comprehensive framework for a value-based health system and described the state of play in each of the key components of that system (including profiling leading institutions and initiatives).

The next step is **local experimentation** to test that vision in the real world in order to identify what needs to change in terms of how health systems are organized and how stakeholders can work together to deliver better outcomes at a lower cost for specific patient groups. This was the goal of the Atlanta and Ontario demonstration initiatives in value-based transformation, launched in the second year of the Value in Healthcare project, initially described in last year's report, and still ongoing.

Now, the industry is at a critical third step: to **accelerate the pace of change** by disseminating the vision of value-based health systems among industry stakeholders, codifying best practices, developing the global enablers of value-based healthcare and creating new platforms for deeper collaboration. This has been the focus of the final year of the Value in Healthcare project.

This report describes three major initiatives that the Value in Healthcare project has conducted during the past year to accelerate the transition to value-based health systems:

– **A "user's guide" to health system transformation.** Value-based healthcare is rapidly progressing from the level of individual healthcare organizations to the level of entire health systems. As it does, the role of multistakeholder collaboration to bring about health system transformation is becoming a critical issue. How do different stakeholders with different interests and perspectives create an effective shared context for working and learning together? And how do they design value-based solutions that are simultaneously feasible and have a material impact on system performance? The first initiative described in this report is a "user's guide" to health system transformation based on our review of leading transformation efforts around the world, and our experience in launching the Atlanta and Ontario initiatives. The full guide will be publicly available to stakeholders interested in working together to bring about the value-based transformation of their own health systems.

– **A "roadmap" for global health-informatics standardization.** Although health system transformation often starts from the bottom up, some barriers to change have to be addressed by the development of top-down solutions that no single health system can address on its own. One critical enabler of value-based healthcare is health informatics – information-technology software and systems, as well as methodologies for the collection, management, use and analysis of health data. The second initiative described in this report is a comprehensive agenda for accelerating the development of global health-informatics standards. This agenda includes a call to action for the creation of a "digital health bill of rights" that puts patient empowerment at the centre of informatics standardization efforts. It also defines approaches for assessing current standardization initiatives, endorsing emerging standards, developing new use-cases and publishing guidelines for the implementation and adoption of global informatics standards.

– **A new public-private collaboration for value in healthcare.** In order to make the transition to value-based health systems, industry stakeholders need to work together more closely than ever before. Increased cooperation requires new institutional mechanisms and forums in which practitioners can come together, learn from each other and develop a shared vision. The third and final initiative described in this report is a new public-private collaboration known as the Global Coalition for Value in Healthcare. Initially hosted by the World Economic Forum, the Coalition will be a global platform for accelerating the development of value-based health systems around the world. The Coalition will formally launch at Davos in 2019.

The purpose of each of these initiatives is to share learnings and develop methodologies and tools that will help stakeholders undertake the last two steps outlined in Figure 2: to **scale up** health system transformation across geographies and population segments, and, in this way, to **realize the full potential** of value-based healthcare for health systems around the world over time.

A User's Guide to Health System Transformation

In the three years of the Value in Healthcare project, we have witnessed the emergence of an important trend: activity in value-based healthcare is moving beyond the level of single healthcare organizations such as those profiled in the first Value in Healthcare report.[10] Increasingly, it encompasses broad-based multistakeholder collaborations designed to have a material impact on entire health systems – at the local, regional, national and even international level. These multistakeholder collaborations have the potential to drive value for patients and for health systems, but they also require an effective context to guarantee success.

Examples of health system transformation

Current efforts at health system transformation take a variety of forms. The diversity of initiatives highlights the many opportunities that stakeholders across the health sector have to improve value for patients by working together and innovating.

Collaborative provider networks. In some cases, different providers are working together to share experiences and learn from each other about how to deliver improved outcomes at lower cost. In the Netherlands, for example, seven Dutch teaching hospitals have joined together in an association known as Santeon to improve patient care by fostering inter-hospital cooperation.[11] With some 29,000 employees, approximately 1,800 of whom are doctors, the Santeon hospitals collectively generate some €2.9 billion ($3.3 billion) in annual revenue and are responsible for approximately 11% of the total volume of hospital-based healthcare in the Netherlands.

In 2016, the Santeon hospitals launched a joint value-based healthcare programme, initially focusing on five target patient groups: breast cancer, prostate cancer, lung cancer, cerebrovascular accident (CVA) and hip arthrosis. The independent boards and leadership at the seven hospitals made a joint commitment to "realize better outcomes for patients faster together" through transparency on health outcomes and costs. The hospital leaders also committed to a long-term agenda: to start with a few patient groups to develop and test a structured methodology for continuous improvement and, then, to expand to include 20–25 patient groups by 2020.[12]

The evidence to date suggests that Santeon's value-based programme is having a major impact on both the health outcomes delivered to patients and on system costs. Take the example of breast cancer: the hospitals have reduced the annual rate of lumpectomy reoperations due to positive surgical margins (a sign that some cancer cells may remain after surgery) by 17% across all seven hospitals and by more than 60% at the hospital with the most reoperations. Similarly, reoperation rates due to post-operative complications after lumpectomy dropped by 27% across the entire system and by more than 70% at the worst-performing hospital. Based on these results, Santeon recently became the first healthcare organization in the Netherlands to negotiate value-based contracts with Dutch insurers in the domain of breast cancer.

National value-based strategies. The Santeon programme is only one example of the growing grass-roots energy focused on value-based healthcare in the Netherlands. Indeed, that energy has reached such a critical mass that the Dutch government has recently announced a five-year Plan for Outcome-Based Healthcare – in effect, a national strategy for value-based system transformation. The €70 million ($80 million) initiative is led by the Netherlands Ministry of Health, Welfare and Sport, with the active participation of stakeholders across the entire Dutch health system. It has four goals:

- **To reach agreement by 2022 on the outcomes to be measured for conditions representing 50% of the total disease burden**, both by adapting international standards for use in the Netherlands and by developing new metrics
- **To support shared decision-making on treatment choices between providers and patients**, by incorporating the principle in the Dutch Medical Treatment Act, by making health information more understandable for patients, and by equipping health professionals with the necessary skills and information to have meaningful conversations about treatment choices with their patients
- **To promote the outcome-based reorganization of care delivery and reimbursement** through the sharing of best practices, the development of more integrated care chains, and the encouragement of more outcome-based contracts between insurers and providers
- **To facilitate better access to relevant and up-to-date outcome information**, through the development of a state-of-the-art health informatics infrastructure, with the goal of making it easy for patients to report data, ensuring that data is well-organized and scalable, promoting access for all relevant parties for the purposes of benchmarking and research, and maintaining privacy and security

Although few countries have made as much progress as the Netherlands in creating a national strategy for value-based health system transformation, there are many signs of growing energy and commitment in a number of other nations around the world. In Canada, for example, a group of some 45 stakeholders from government, the provider sector, industry and patient organizations met formally at the October 2017 ICHOM conference to discuss the potential for developing a pan-Canadian approach to value-based healthcare. Their discussion led to the organization of a national Value-Based Healthcare Canada Summit in March 2018 and a design day in August 2018 to develop criteria for identifying promising future opportunities for value-based initiatives across the country.[13] In France, the National Authority for Health (Haute Autorité de Santé, HAS) is holding discussions with patient advocacy groups and other healthcare organizations to identify the types of data and metrics that can serve as the basis for a value-based health system. Finally, a number of emerging-market nations are incorporating value-based principles in the redesign of their national health systems – and even developing national strategies to "leapfrog" the legacy health systems of the developed world.[14]

International quality registries. Another area of progress that highlights the power of multistakeholder collaboration is the growing internationalization of quality registries – a development that is taking recognized registry capabilities in tracking health outcomes, benchmarking clinical performance and identifying and sharing best practices, to the global level. Take, for example, the European Registry of Quality Outcomes for Cataract and Refractive Surgery, known as EUREQUO. Funded by the European Society of Cataract and Refractive Surgeons (ECRS) with initial support from the EU, EUREQUO is perhaps the largest multinational information-technology project in the domain of eye care.

The registry connects surgeons from 12 EU countries and two non-EU countries in a web-based platform that allows them to audit surgical results, identify best practices, adjust their techniques and improve their outcomes. Since it was established in 2008, more than 2.6 million cataract surgeries have been recorded in the system.[15]

Value-based business-model innovation. Multistakeholder collaboration for value-based transformation is also happening through the innovation of new business models for care delivery. Two examples from the more market-oriented US health system illustrate how stakeholders are coming together to define new business opportunities that incorporate value-based principles.

Since 2014, the US private payer Humana has partnered with the start-up Iora Health to bring Iora's value-based model for primary care for elderly people to Humana's Medicare Advantage members in markets in Arizona, Colorado, Washington and Georgia.[16] Each patient is served by a multidisciplinary care team consisting of a doctor, nurse practitioner, health coach, behavioural health specialist, clinical team manager and operations assistant who work together to take a holistic approach to the patient's health that emphasizes personalized care, prevention and systematic outcomes improvement. Iora provides patients with 24/7 access to care through a spectrum of both office and non-office encounters (including phone, text messages and email), an accessible and transparent medical record, and robust educational offerings. According to one study, Iora's patients saw a 50% decrease in hospitalizations and a 20% decrease in ER visits. Through the partnership, Humana's Medicare Advantage patients have access to the Iora delivery system, and Iora's primary-care teams are able to collaborate with Humana's extensive network of specialists.

Another example is Health City Cayman Islands (HCCI), a joint venture established in 2014 by India's Narayana Health and Ascension Health, the largest not-for-profit hospital chain in the US. The goal of the joint venture is to disrupt the US healthcare market by providing specialty care of such high quality and at such low cost that it will attract patients from the US willing to travel to HCCI for specialty surgery.

Narayana has grown into India's largest multi-specialty hospital chain through the provision of low-cost, high-quality treatment. The chain employs economies of scale, applies production-line concepts to surgery, and uses information technology and data to promote efficiency and standardization across the network. Because of these innovations, the average cost of open-heart surgery at Narayana is less than $2,000, compared to the typical US cost of more than $100,000 – with patient outcomes that rival those of the US.

HCCI is accredited by Joint Commission International, considered the gold standard in accrediting of global healthcare facilities. Although HCCI's costs are higher than at Narayana's hospitals in India, it still delivers quality care at roughly 30% to 50% of US fees for the same procedures.[17] The Narayana-Ascension partnership is an example of so-called "reverse innovation" in which value-based practices perfected in emerging-market countries are being used to transform developed-market health systems.[18]

The value in healthcare transformation initiatives. These examples suggest the tremendous potential of multistakeholder collaboration to drive healthcare value. Collaboration for system transformation, however, also poses unique challenges, which helps explain why it still remains the exception rather than the rule. To explore these challenges and the ways to address them, the Value in Healthcare project launched the pilot transformation initiatives in Atlanta and Ontario.[19] Our goal was to push the envelope on multistakeholder collaboration by involving the full spectrum of stakeholders in the local health system. (For an update on these pilots, which were initially discussed in last year's report, see the sidebar "Piloting Approaches to Health System Transformation".)

Piloting Approaches to Health System Transformation

In discussions of value-based transformation, the focus is often on the global enablers of system change – for example, healthcare policy and regulation, the development of health informatics, or value-based payments. These enablers are critically important (we discuss one in detail in the next section of this report.) But value-based transformation doesn't really happen until it takes place at the local level. What's more, there is a great deal that local stakeholders can do to start the transition to value-based healthcare – in parallel to (or even in the absence of) comprehensive policy, regulatory or infrastructural changes. That's why the Value in Healthcare project launched two local system-transformation initiatives: to explore models for bringing stakeholders together around a shared problem around value for a defined population segment or patient group and to learn how they can work together to initiate value-based transformation.

In 2017, some 40 stakeholders in the metropolitan area of Atlanta, Georgia, created the Atlanta Heart Failure Pilot, a demonstration project to create a continuously improving value-based healthcare system that positions Atlanta as a national leader in heart-failure survival by 2022. Similarly, in 2018, roughly 35 healthcare stakeholders in Ontario, Canada, launched the Ontario Diabetes Pilot to reduce disease progression, limit complications and improve health outcomes for patients suffering from type 2 diabetes.

The Atlanta and Ontario initiatives are still early in their evolution and remain very much works in progress. So far, there have been some successes and some setbacks. The initiatives have been most successful as forums for developing a system-wide perspective on the problems of the local health system. As one participant in the Ontario initiative put it, "There is nowhere else where we can have these conversations."

A shared understanding of the problem has also contributed to a developing consensus on critical solutions. In both Atlanta and Ontario, for example, an important focus has been on creating a system for tracking and publicly reporting a standard set of health outcomes for all patients suffering from the target disease. Atlanta, in particular, has made considerable progress in agreeing on a common set of metrics to track, and in linking the information systems of participating providers to the Georgia Health Information Network (GaHIN) in order to share data for the purpose of benchmarking.

The initiatives have also identified targeted clinical interventions with the potential to improve value delivered to patients and to the local health system. For example, the Ontario project has highlighted one area in particular where the local health system can improve: the prevention and treatment of diabetic foot ulcers (DFUs).[20] The project is also partnering with Health Quality Ontario (HQO), the provincial agency that develops quality standards for healthcare delivery, on an already existing HQO initiative to create a new province-wide quality standard for diabetes care.

However, both the Atlanta and Ontario initiatives have experienced significant delays in moving to implementation. The main challenge has been uncertainty about local political support. In the early days of the Atlanta initiative, the city's then-mayor Kasim Reed proved instrumental in building an industry-wide coalition for change. But when Mayor Reed stepped down due to term limits in January 2018, the initiative lost momentum. Similarly, in Ontario, the transition in the provincial government that resulted from elections in June 2018 introduced some uncertainty about future government health policies, which has slowed the progress of the diabetes effort.

Fortunately, the delays in Atlanta and Ontario have led a number of stakeholders in both locations to step up and play an active leadership role. In Atlanta, some private-sector corporations have committed financial resources to fund the ongoing activities of the initiative. Hospitals have contributed in-kind resources, and multiple local organizations formed an on-the-ground leadership team, guiding the day-to-day work of the initiative. And recently, the new mayor has re-engaged with the initiative, appointing two representatives to its steering committee. Meanwhile, in Ontario, a small core group of patient advocacy organizations and private companies has taken the lead in advocating for the initiative with the new political leaders of the provincial health system.

Based on our experience of these pilots and our review of the examples of system transformation described above, we have synthesized learnings in two vital areas: how to create an effective context for multistakeholder collaboration and how to design value-based solutions that are simultaneously feasible and have a material impact on system performance.

Creating a context for multistakeholder collaboration

Organizational transformation is hard enough in a single organization. It is even harder in complex environments consisting of multiple stakeholders. In a single organization –say, a private corporation – the institution's leader may be able to mandate transformative change. But in complex systems such as healthcare, there is no single authority that can make change happen on its own.

To be sure, political leaders and policy-makers set the broad "rules of the game" through the legal and policy framework governing the health system. Nevertheless, in most health systems, authority is broadly distributed across multiple organizations. Some are public; some are private. Some represent the providers of care; others represent payers, suppliers or patients. As a result, when representatives from different stakeholders come together in a joint project, they will often bring conflicting perspectives, goals and incentives. What's more, stakeholders' commitment to the transformation agenda is typically voluntary, which means that leaders and their organizations can abandon the initiative at any time if they feel it is not making progress or not moving in the direction that they prefer. And there is no shared organizational culture or business processes spanning all participants, which can make it difficult to coordinate activity across different representatives from different organizations.

In order to address these unique challenges, the leaders of health system transformation initiatives must, from the very beginning, pay special attention to two critical tasks: first, creating a strong **authorizing environment** to support participants and, second, building a strong **holding environment** to keep them focused on, and committed to, system transformation over time.[21]

Creating the authorizing environment. Multistakeholder transformation rarely succeeds with a top-down mandate. Rather, it requires the development of a broad network of authorization consisting of multiple champions from different organizations in the system who endorse the initiative, advocate for it inside their own organizations and in the community at large, and invest the resources to make it happen. Multistakeholder transformation has the best chance of scaling up to influence the health system when health system leaders are collaborators in the effort, strengthening it with institutional support and resourcing. Developing this authorizing environment is an important task early in the transformation effort. Some effective ways to do so include:

- Developing a shared understanding of the problem and a common vision for change
- Establishing explicit governance principles to guide group decision-making
- Engaging in active stakeholder management to secure broad support and buy-in
- Avoiding reliance on a single individual or organization to champion change

It can be tempting to look to political leaders and government policy-makers to lead change – on the theory that nothing will happen without their support. Such leadership is, of course, important. But political leadership is not sufficient on its own – and too much reliance on a single leader may put an initiative at risk when that leader steps down or moves on to a new role. Therefore, it is critical that leaders from the local stakeholder community – providers, payers, pharma and medtech companies, research institutions and, perhaps most importantly, patient-interest groups and advocacy organizations – also play an active leadership role, are prepared to look beyond the interests of their own institutions, and create a strong authorizing environment. When that distributed industry-wide leadership is in place, it can help sustain the transformation effort through periods of political uncertainty. And, as in the case of the Netherlands, a critical mass of grass-roots activity can help set the stage for system-wide transformation.

Building the holding environment. Once a project is launched, it is equally important for leaders, project management and all stakeholders to maintain the commitment and engagement of the group and to keep the project on track. System transformation takes time; progress is measured not in months but in years. What's more, transformation is necessarily disruptive of traditional ways of working. As a result, any successful transformation project will involve a degree of creative tension. In order to be effective, a system-transformation initiative must push leaders and organizations out of their comfort zones and encourage them to consider new and more effective ways of working together. Sometimes that process can lead to conflict and disagreement. Some participants will find the task too difficult and will want to fall back to narrower and less ambitious goals. Others get trapped in unproductive disagreements and may drop out of active participation.

An effective holding environment contains this tension and directs it towards the goals of the transformation effort. Projects can establish this holding environment by:

- Keeping the group focused on the core problem they are trying to solve: improving value for patients
- Creating a shared project culture and work style that encourages trust (especially during periods of disagreement)
- Managing carefully the pace and sequence of work to sustain ambitious goals but without overwhelming participants
- Adapting traditional project-management tools (milestones, tracking and reporting lines) to create a common set of expectations and a common approach across organizations that do not have shared processes

A vital factor in building and maintaining a strong holding environment is experienced, neutral project management. A neutral project-management team is in a position to facilitate cooperation and productive work across multiple stakeholders in a way that any single stakeholder is unable to do – for example, by helping negotiate perceived conflicts of interest. But in order to play this role effectively, the project-management team needs to keep two things in mind. First, it needs to recognize that its role is not to design the initiative on its own, but, rather, to facilitate a process in which the relevant participants come together to design the system change themselves. Second, the project-management team needs to conceive of its role broadly to include active stakeholder management and change management, as well as traditional project management.

Developing targeted solutions

Creating strong authorizing and holding environments sets the organizational context for effective health-system transformation. Equally important is the design of the process and content of the transformation initiative itself. Based on our review of system transformation efforts around the world and on our work in the Atlanta and Ontario initiatives, we have developed a methodology for launching and managing local transformation initiatives that consists of six steps (see Figure 3).

It's useful to conceive of each of these steps in terms of questions that stakeholders need to ask themselves as they come together to improve value in their local health system:

1. What is the problem we are trying to solve?
2. Who are the stakeholders that need to be in the room?
3. What are the root causes of the problem?
4. What solutions should we focus on?
5. What is our plan for implementing our solutions?
6. What are we learning that can be scaled up to the system as a whole?

1. What is the problem we are trying to solve?

The starting point of any transformation project is to define an ambitious, but focused, goal for the effort. In this case, this means targeting a specific patient group of particular importance to the local health system. Population segments of individuals suffering from the same disease or belonging to a specific risk group are the vital units of analysis in value-based healthcare. Focusing on a major problem in how the local health system delivers value to a specific population segment helps create a sense of urgency about the need to work together to improve system performance.

Another advantage of focusing on a specific population segment is that it forces stakeholders to develop a systemic approach to improving outcomes. Focusing on outcomes delivered to a patient group (as opposed to, say, focusing on the specific products or services each stakeholder delivers) requires participants to look across the entire system in order to identify all of those factors contributing to the current results in terms of health outcomes delivered by the system. Different stakeholders will naturally bring different perspectives on precisely how to improve outcomes for the patient group in question. The very act of sharing those perspectives and discussing the systemic nature of the challenge will help them develop a shared understanding of the problem and the role of alternative solutions.

2. Who are the stakeholders that need to be in the room?

In parallel with selecting the focus of the transformation initiative, it is equally important to assemble a broad cross-section of stakeholders to participate in the effort. This is critical to creating the all-important authorizing environment described above. It's not enough to have experts design the ideal solution. Rather, players across the entire health environment need to authorize the work, co-design the initiative and commit to a shared vision for change. What's more, giving a broad cross-section of stakeholders a "seat at the table" helps uncover a rich variety of perspectives on the obstacles to improving outcomes and the breadth of possible solutions to consider for a given disease. The more that participants are forced to engage with the perspectives of others, the more likely that the solutions they design together will be robust.

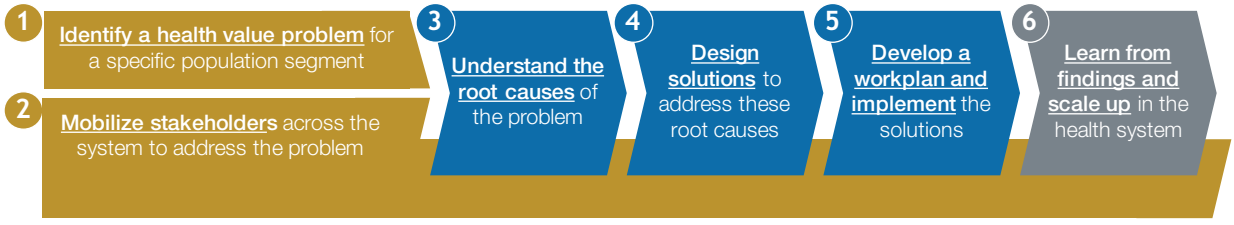
3. What are the root causes of the problem?

Once the participants in a transformation initiative have defined the focus of their efforts and assembled a broad multistakeholder coalition, the next step is to analyse the root causes of the problem. This is partly a matter of developing a clear baseline of current system performance, including quantifying current health outcomes. It is also a matter of identifying the barriers in the system that keep it from doing better and that explain current performance. Identifying and agreeing on these barriers helps participants develop a holistic view of the root causes driving current outcomes and what kind of solutions can best improve value delivered to patients.

4. What solutions should we focus on?

As participants develop a comprehensive and shared understanding of the root causes of current system performance, they will also identify important leverage points for intervening in the system to improve future performance.

Figure 3: Successful System Transformation Takes Six Steps



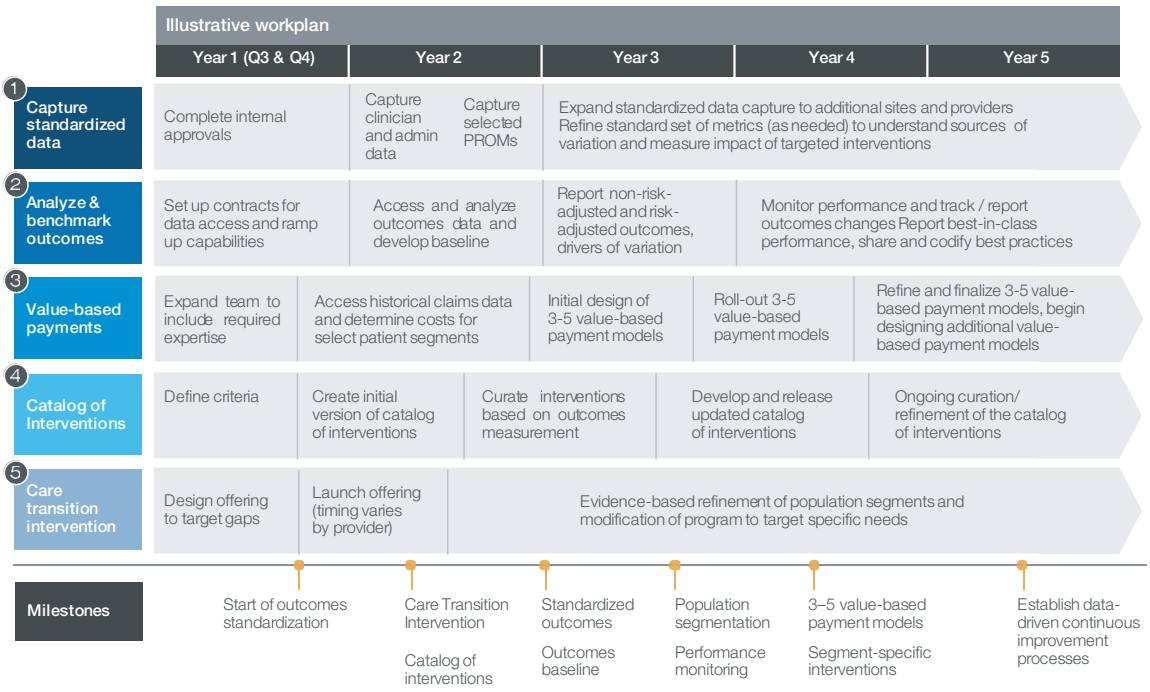
Source: BCG analysis

Some of these interventions will be "infrastructural" improvements to one or more of the key enablers of value-based healthcare – for example, the Netherlands' plan to build a national health informatics infrastructure. Other interventions will be more directly clinical in nature – such as the focus of the Ontario initiative on improving health outcomes for diabetic foot ulcers. Still others will focus on broader issues of how care is organized and delivered – for instance, the Santeon network's collaborative approach to continuous improvement or the adaption of Narayana's care delivery model in the HCCI joint venture.

5. What is our plan for implementing our solutions?

After defining the main initiatives of the transformation effort, the next step is to develop a detailed work plan that spells out how the project will go about achieving its objectives. An effective work plan translates the high-level goals of the transformation effort into concrete targets, timelines, milestones and accountabilities. (For an illustrative work plan, based on our work in Atlanta, see Figure 4.)

Figure 4: Implementing Health-System Transformation Requires a Detailed Work Plan



Note: PROMs = patient reported outcomes measures
Source: BCG analysis

A detailed work plan represents the important steps in the multi-year transformation journey. It is a critical tool for monitoring progress, identifying unanticipated obstacles early, and focusing resources on the relevant tasks when timelines slip. Having a clear plan at the outset allows the team to have productive conversations when things are not going according to plan and make informed decisions about the appropriate trade-offs to accomplish the initiative's goals.

6. What are we learning that can be scaled up to the system as a whole?

In the end, a single transformation initiative can only do so much. Some barriers to value-based healthcare are hard to address at the local or even national level. Any initiative will, to a degree, be constrained by factors that are beyond the scope of the initiative itself. Therefore, the final phase of any initiative should involve activities to plan for the scaling up of the transformation effort. There are at least three dimensions to this scale-up opportunity:

- **New population segments.** Initiatives structured to improve outcomes for a specific population segment are often relevant to other population segments. For example, an initiative focused on a specific chronic disease (say, diabetes) will likely have relevant applications to other chronic diseases (for instance, heart failure or chronic obstructive pulmonary disease [COPD]). Every patient journey is different, but stakeholders can often adapt vital aspects of one initiative to other population segments in the same health system.

- **New organizations or geographies.** An initiative may start out with a limited geographic scope (especially in a health system in which stakeholders have limited experience with value-based healthcare). However, insights from the initiative can often be scaled to new geographies, either within the same health system (for example, by spreading innovations to new organizations and stakeholders) or in other health systems (for instance, by sharing and disseminating best practices to leaders from other areas).

- **Institutionalization of practices and policies.** Finally, an initiative will test and validate new approaches to managing the health system – for example, by piloting new service delivery models, experimenting with different payment structures or collecting or analysing data in novel ways. It is critical for proven approaches to be codified and sustained through actions such as: writing them into healthcare policy and regulation, providing training in the new approaches to important stakeholders or investing in resources to sustain existing and future efforts.

As a contribution to the scale-up process, the Value in Healthcare project has codified the lessons to date, drawn from our research on health system transformation, in a detailed user's guide that industry stakeholders around the world can use to launch their own initiatives in value-based system transformation. The user's guide will be available online after the January 2019 Davos annual meeting at the website of the Global Coalition for Value in Healthcare (see Figure 5).

Figure 5: A User-Guide for Health System Transformation

Source: BCG analysis

A Roadmap for Global Health-Informatics Standardization

Although health system transformation typically takes place at the local level, some barriers to change have to be addressed by the development of top-down solutions that no single health system can address on its own. The Value in Healthcare project has this year focused on addressing one of the most critical enablers of value-based health systems: health informatics.

An urgent challenge

Improving value delivered to specific patient groups or other population segments depends upon the systematic measurement of health outcomes. For this reason, health informatics – information-technology software and systems, as well as methodologies for the collection, management, use and analysis of patient health data – are a critical enabler of value-based health systems.

Data on health outcomes, patient characteristics, case-mix and treatment variables is the basis for point-of-care decision-making, clinical research and the systematic measurement and improvement of health-system performance. But building a comprehensive health-informatics infrastructure requires the development of common pre-competitive, open-industry standards that make it possible to link different data types and data from multiple sources. Ideally, those standards should be global, both to allow for benchmarking across national health systems and to make possible the analysis of large sets of comparable data that are a prerequisite for the development of highly targeted clinical interventions for specific population segments.

Today's health information systems make it extremely difficult to measure and drive improvement in patient outcomes and system performance. Typically, a person's health information is fragmented across multiple incompatible data sources and proprietary information systems, making it hard to link data from different providers in order to develop a holistic view of the individual's health or the care they have received. There is little global consensus about appropriate standards or approaches to capture, map and access data; a lack of global coordination and oversight of existing data standardization efforts; and no global guidance for how best to adopt and implement those standards and approaches that do exist.

And yet, despite these obstacles, there is a great deal of promising innovation happening in the field of health informatics. Increasingly, consumers want to take more control of their own data – and recent legislation such as the European Union's General Data Protection Regulation (GDPR) is giving them the legal right to do so. New technologies and approaches such as natural language processing, artificial intelligence (AI) and blockchain can improve our ability to extract insights from the diverse array of health data. And new players from outside the traditional healthcare industry are leveraging application programming interface (API)-based technologies to propose new approaches for building a standardized health-informatics infrastructure. For example, in August 2018, a coalition of leading technology companies including Google, Amazon, IBM, Microsoft, Oracle and Salesforce announced a joint commitment to "remov[e] barriers for the adoption of technologies for healthcare interoperability" and to "unlock the potential in healthcare data, to deliver better outcomes at lower costs".[22]

Nevertheless, an urgent challenge remains: to achieve meaningful coordination of existing efforts so that the needs and perspectives of technology users in the industry – governments, providers, payers, regulators, researchers, pharma and medtech companies, patient advocacy organizations and NGOs – are represented in technology standardization initiatives. Only in this way can the industry ensure that these initiatives are informed by the emerging consensus among industry stakeholders about the critical prerequisites of value-based health systems and, therefore, that any new standards support value-based healthcare.

Last year's Value in Healthcare report focused on defining the types of open-industry, pre-competitive standards required for value-based healthcare. During the past year, the Value in Healthcare project has focused on developing a roadmap to achieve global convergence on these standards. The goal: to design a global, multistakeholder, public-private initiative that supports people, health systems, governments and industry to increase value in healthcare through better uses of data.

A five-part agenda

To kick off that effort, the Value in Healthcare project assembled an international working group of leading health-informatics experts to lead the effort. (See the Appendix, "The Value in Healthcare Informatics Working Group".)

The working group has developed a five-part agenda for value-based health-informatics standardization (see Figure 6).

1. Defining a global vision and person-centric principles

Value-based healthcare puts the patient and value delivered to patients at the very centre of the health system. Therefore, health informatics standards designed to improve healthcare value should also support individuals, placing their health interests at the centre of the standard-setting effort.

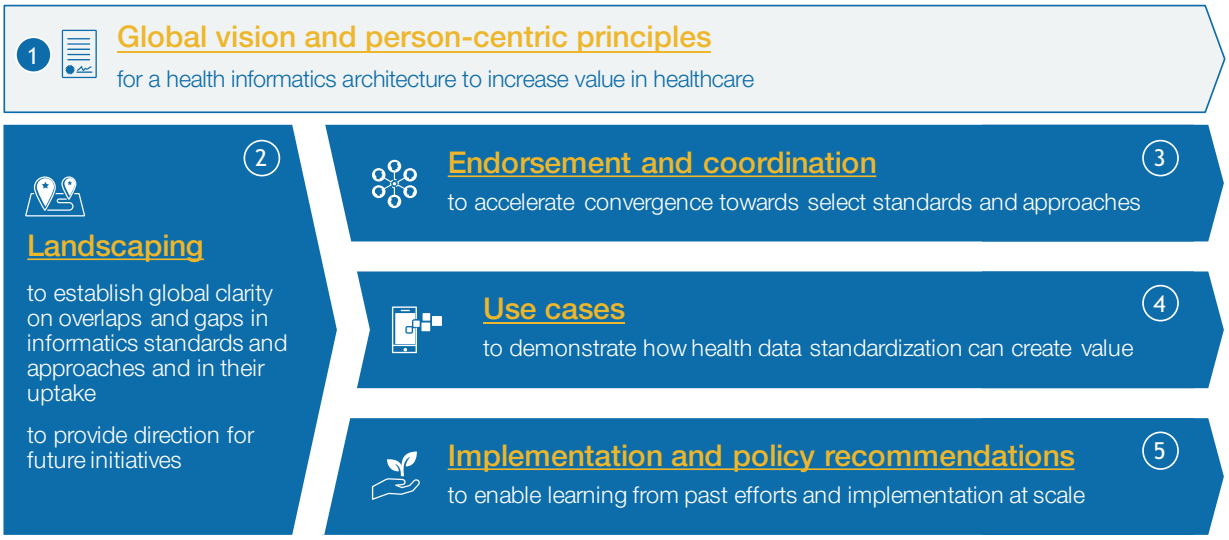
One effective way to achieve this goal is to develop a digital health bill of rights. The bill of rights would consist of a set of foundational principles that inform individual rights of access to personal health data and that govern the use of that health data in clinical decision-making and research. The bill of rights would be endorsed by patient organizations around the world, adopted by stakeholders in the industry, and used to guide any informatics standardization initiatives. Such a bill of rights might include principles such as the following:

- Individuals should have access to their health data in a standardized computable format, irrespective of source, through an individualized point of access
- Individuals should be informed about how their health data is used and, in situations in which the sharing of their personal health data is voluntary, they should be able to provide or withdraw consent for the use of their data
- Individuals and the organizations that have access to their data should be able to use the data to inform care decisions, improve operations, deliver personalized, high-value care and advance research
- Individuals should be able to provide and share their own outcomes data
- Individuals and organizations should have access to information based on anonymized health outcomes and other relevant health data, in order to ensure transparency, enhance accountability, enable choices about providers and treatments and improve public-health
- Individuals should be able to seamlessly grant access to, and meaningfully make use of, their own data

The advantage of developing a digital health bill of rights is that it will provide a general framework for the creation of health-informatics standards and support the goal of producing truly interoperable informatics systems. International agencies can use these principles to set the global agenda for health-informatics standardization. Patients and patient advocacy groups can use them to create awareness among their constituents and to advocate for governments to include these rights in the legal and policy framework for the national health system. And providers, payers, and pharma, medtech, health-information and life-science companies can use them to design new informatics initiatives.

Some countries are already building health information systems informed by at least some of these principles. In Estonia, for example, it is a legal requirement for all personal health information to be stored in a machine-readable common format within one to five days of service delivery. The health informatics system links data from different providers and ancillary stakeholders such as ambulance

Figure 6: The Value in Healthcare Roadmap for Global Health-Informatics Standardization



Source: Value in Healthcare Informatics Working Group

services. Individuals have access to their data through a single point of access. Providers also have access to aggregated data for clinical and research purposes, although patients have the right to restrict access in specific situations.[23]

As stakeholders work together to develop the digital health bill of rights, however, it will be important to balance two competing objectives. There is a potential tension between the principle of individuals having control over their data and the principle that data should be available to practitioners, both for the delivery of the best possible care to the individual (for example, in case of emergency) and for benchmarking and research purposes in order to improve healthcare value for the population as a whole. There are effective ways to manage this trade-off to ensure access to individual and aggregated data for healthcare providers and researchers in order to drive improvements in care and in health-system performance, while also ensuring patient consent and protecting patient privacy. For example, one approach is to adopt an "opt-out" (as opposed to "opt-in") model for providing patient consent. This opt-out model is the recommendation, for example, of the UK's National Guardian for Health and Care.[24] Another approach is that taken by the EU's GDPR regulation, which makes a distinction between the initial processing of data (for which patient consent is necessary) and subsequent processing operations that are deemed "compatible" with the initial patient consent. In the regulation, use of health data for research purposes is considered a compatible use.[25]

2. Mapping the standardization landscape

Many initiatives for health informatics standardization are already underway in various countries and regions of the world. Some, for instance, are active efforts to develop relevant standards. Examples include the recently developed Health Level Seven International Fast Healthcare Interoperability Resources (HL7-FHIR) data-model standards, the Clinical Information Modeling Initiative (CIMI) standards for shared implementable clinical information models, and ICHOM's standard sets specifying the outcomes and other metrics to track for a given condition.

Other initiatives support the development and implementation of existing standards across the healthcare environment. Examples include:

- The Argonaut Project, a private-sector initiative in the US to refine and spur the adoption of HL7-FHIR standards
- Trillium II, a joint EU-US initiative to accelerate standards development for cross-border exchange of health data, starting with the development of an International Patient Summary standard
- The CommonWell Health Alliance, a US trade association supporting the exchange of health data through the provision of services such as patient enrolment, record location and patient identification and linking
- The European Health Data and Evidence Network (EHDEN), an EU initiative to create a fully interoperable informatics network for European biomedical research

All of this activity is encouraging, but the growing innovation in the informatics space also makes it critical to develop a clearer picture of the current landscape. In particular, the industry needs to identify overlaps among existing projects as well as any gaps in standards development that need to be addressed in order to capture, map and access the data necessary to enable value-based health systems. For example, there is currently no internationally agreed-upon approach to represent patient care plans, including medication regimens, in health information systems; no scalable method for obtaining automated, machine-readable patient consent for data access and usage; no general method for linking health-outcome standard sets to health-

record data; and only limited taxonomies for representing patient preferences, motivations and values. Thus, mapping the global landscape of ongoing standardization work is critical for defining the priorities of subsequent components of this agenda.

3. Creating governance mechanisms for endorsement and coordination

Once the landscaping exercise documents the current status of existing health-informatics standardization initiatives, the next step will be to create governance mechanisms for endorsing standards and for coordinating their accelerated development and uptake. It is critical that any global governing body assembles a critical mass of global experts to drive industry consensus on the strategic direction for standard setting and development. These experts should include health informatics specialists drawn from both the health technology community and from vital end-user communities that use health data.

In some situations, this governing body might even support targeted initiatives to accelerate the development and adoption of endorsed standards. As an illustrative example, consider the HL7-FHIR data-model standards. A targeted project could work with the FHIR and Argonaut communities to speed up the adoption of the FHIR standard in new geographies beyond the US and Australia – for example, by supporting the implementation of the FHIR standard in a subset of "early adopter" countries in the EU and in the Asia-Pacific region. It could also link FHIR to other standard-setting initiatives – for instance, by creating implementation guides for representing ICHOM's globally endorsed outcome standard sets in FHIR. Finally, the initiative could facilitate input into the ongoing development of the FHIR standard from end-user organizations in the healthcare industry, for example, pharmaceutical or medtech companies.

4. Developing value-based use-cases

The industry also needs to develop specific use-cases that demonstrate how adoption of informatics standards across multiple health systems can deliver improvements in value to patients and to health systems. Such use-cases should focus on linking the types of data necessary for value-based healthcare – that is, data on population segments (for instance, diagnoses or demographic categories), data on health outcomes (clinician- and patient-reported measures) and data on segment-specific interventions (for example, types of treatment). Most demonstration use-cases will likely fall into one of two categories:

- **Primary uses of data** – for example, developing a holistic view of individual patient data from multiple sources or demonstrating how a clinical-decision support system can be implemented across multiple provider information systems
- **Secondary uses of data** – for example, harvesting population-level health data for global benchmarking of risk-adjusted outcomes across health systems or linking data from multiple data sources for the identification of patient segments, predictive analytics or the development of segment-specific treatments

For an example of one such use-case, the Value in Healthcare project has recently launched an initiative to define a "minimum viable product" for an open-source data model that can facilitate automatic capture and reporting of a standard set of outcomes data from multiple providers without transferring any data tied to a single individual. The model – which, in the initial proof of concept, focuses on cataract disease – will make possible the continuous collection and comparison of outcomes data on an international level (via "remote data-harvest by algorithm") so that the data can be benchmarked and reported back to the providers on a routine basis. The data model will minimize the need for healthcare organizations to manually compile and report their patient outcomes.

The data-model initiative is working in collaboration with the ICHOM Global Outcomes Benchmarking (GLOBE) programme, which aims to provide risk-adjusted, international benchmarks on healthcare outcomes by medical condition. In the domain of cataract disease, the GLOBE initiative has assembled a consortium of over 53 healthcare-provider sites in eight countries that conduct cataract surgeries for some 60,000 patients per year.

5. Providing guidelines for implementation

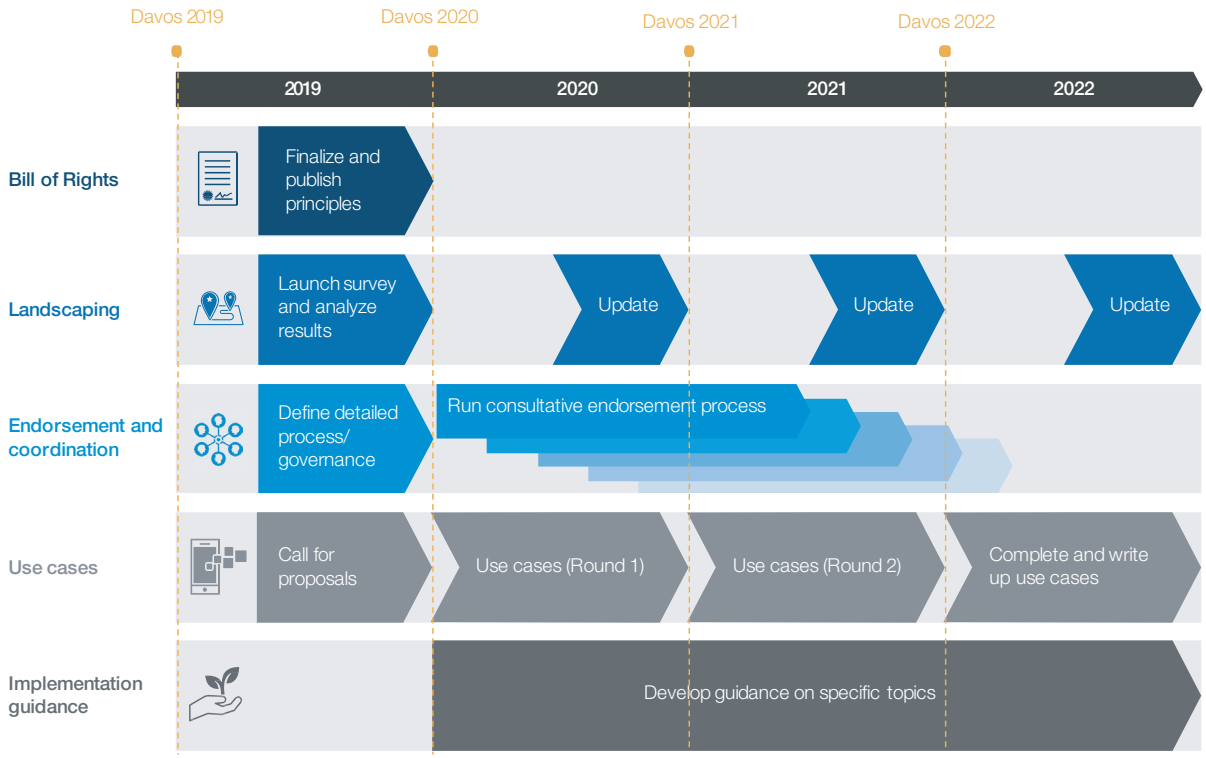
As important as it is to develop common standards for health informatics, it will be equally important to develop best-practice guides for the implementation and adoption of those standards. In addition to specific technical guidance, there is also a need for policy and organizational guidance on effective implementation for governments and industry stakeholders.

Preliminary timeline

The Value in Healthcare Informatics Working Group has developed a preliminary four-year timeline for enacting this five-part agenda (see Figure 7).

Delivering on this timeline, however, will require creating an organizational home for the governance, strategic leadership and ongoing coordination of these and other industry-wide efforts to accelerate value-based healthcare. This is the focus of the third and final initiative of the Value in Healthcare project, described in the concluding section of this report.

Figure 7: A Preliminary Timeline for the Roadmap for Global Health-Informatics Standardization



Source: Value in Healthcare Informatics Working Group

The Global Coalition for Value in Healthcare

The third initiative launched by the Value in Healthcare project to accelerate the pace of health system transformation is a non-profit, public-private collaboration, initially hosted by the World Economic Forum. Known as the Global Coalition for Value in Healthcare, the organization will continue the work of the Value in Healthcare project after the project's formal conclusion in January 2019. More information about the Coalition can be found at:

www.weforum.org/global-coalition-for-value-in-healthcare

A new public-private collaboration

Value-based health systems present a tremendous opportunity to optimize outcomes for patients and the costs to deliver those outcomes. However, as the Value in Healthcare project has demonstrated, achieving value-based health systems requires collaboration across all stakeholders in the system. And this type of collaboration requires dedicated leadership committed to making change happen.

The Global Coalition for Value in Healthcare will be a platform for accelerating the development of value-based health systems around the world. The coalition will serve as a source of information and learning about value-based

transformation and will convene a global community of healthcare leaders committed to making value-based healthcare a reality.

The coalition will be a membership organization for healthcare organizations, leaders and practitioners worldwide interested in developing the concrete tools and methodologies required to implement value-based health systems. It will inherit the projects launched by the Value in Healthcare effort, supporting their further development, as well as initiate new projects. Initially hosted by the Word Economic Forum and governed by the leaders on the current Value in Healthcare Executive Board, the coalition will also use the Forum's convening power to assemble a community of senior leaders and practitioners who collaborate on value-based transformation in their local systems, share learnings, develop effective methodologies and guide the development of value-based health systems worldwide.

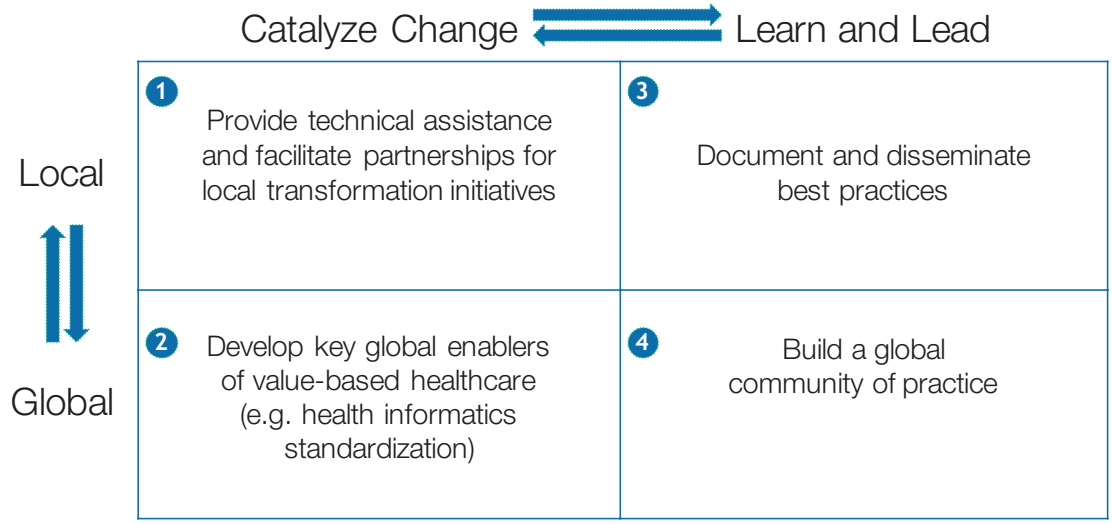
Four strategic priorities

The coalition will pursue four strategic priorities at both the local and global levels (see Figure 8).

1. Provide technical assistance and facilitate partnerships for local transformation initiatives

The appetite for value-based healthcare is growing around the world. New initiatives are taking shape from the ground up. The coalition will support these and other initiatives aimed at system transformation through the provision of tested methodologies, expert advice and other aspects of technical assistance. For example, it will maintain the User's Guide to Health System Transformation, mentioned earlier in this report, as a living document, updating and refining it as practitioners' knowledge about how to undertake effective system transformation develops and expands. The coalition will also facilitate partnerships among stakeholders working within a health system that want to collaborate on new value-based initiatives, and it will partner with local organizations who are championing value-based healthcare.

Figure 8: The Global Coalition for Value in Healthcare Will Engage in Four Critical Activities



Source: BCG analysis

2. Develop key global enablers of value-based healthcare

Parallel to these local initiatives, there is also considerable activity and experimentation in the design of the global enablers of value-based healthcare. This report describes some of the current initiatives in the domain of health informatics and, as one of its first tasks, the coalition will champion the roadmap for global health-informatics standardization described in the previous section of this report. Over time, the coalition will also undertake thematic explorations on each of the value-based healthcare enablers, for example: value-based payment; research, benchmarking and decision-support tools; the organization of care delivery; and policy and regulation.

3. Document and disseminate best practices

Value-based healthcare demands iterative learning and continuous improvement. The more that stakeholders do, the more they will learn about what works and what does not. And the more initiatives that are launched, the more important it becomes to identify, document and disseminate best practices and to update existing methodologies. A third activity of the coalition will be to serve as a centre of excellence for the collection and documentation of case studies, techniques and methodologies that practitioners can adapt to their local health systems in order to put value-based healthcare into practice.

4. Build a global community of practice

In the end, the best way to drive momentum for value-based healthcare is through joint, peer-to-peer collaboration in which practitioners and health-system leaders can learn directly from each other about where they have succeeded and where they have failed on their transformation journeys. As the coalition identifies successful local initiatives, contributes to the design of global enablers, and codifies best practices, it will also build a global community of practice to facilitate the systematic sharing of ideas and learning among value-based-healthcare leaders around the world. It will also convene leaders and practitioners in collaboration with its member organizations to accelerate the diffusion of best practices. We plan to begin engaging with leaders on this community of practice at Davos 2019, where we will identify high-priority topics to engage on going forward.

Our hope is that the Global Coalition for Value in Healthcare can contribute to the industry agenda for value-based healthcare, help drive implementation and, over time, become a leading institution in the creation of the ever-higher levels of multistakeholder cooperation that are essential to making value-based healthcare a reality. The future of the global healthcare sector – and the health of patients around the world – depend on it.

Global Coalition for Value in Healthcare

Appendix:
The Value in Healthcare Informatics Working Group

Over 30 leaders from government, multilaterals, NGOs, academia, payers, providers, industry and patient advocacy organizations participated in the multistakeholder working group that developed the roadmap for global health-informatics standardization. Some participants are listed below. (Institutional affiliations are cut for identification purposes only and do not represent an official endorsement by the listed organizations.)

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**The views expressed as part of this project are those of the authors alone and do not necessarily reflect the official views or policies of the U.S. Food and Drug Administration or HHS.

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The World Economic Forum would like to thank the many contributors to this report for their insights, guidance, dedication and time.

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Steven Thompson, Senior Vice-President and Chief Business Development Officer, Brigham and Women's Hospital
Thomas Laur, Global President, Connected Health Division, SAP SE
Tom Hulme, General Partner, Google Ventures
Vivian Tan, Vice-President, Strategy and Transformation, Kaiser Permanente

Endnotes

1. According to the World Bank, the compound annual growth rate in health expenditures for the OECD countries between 2009 and 2015 was 2.9%.The equivalent growth rate in GDP per capita was 1.2%.
2. For variations in health outcomes among the OECD nations, see "Health at a Glance 2017", Organisation for Economic Cooperation and Development, 2017; available at: http://dx.doi.org/10.1787/health_glance-2017-en. For outcomes variation in a single country, see Barry L. Rosenberg et al., "Quantifying Geographic Variation in HealthCare Outcomes in the United States Before and After Risk-Adjustment", PLOS One 2016;11(12): e0166762; available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0166762 (link as of 20/11/18).
3. The US is the most dramatic, but not the only example. In 2015, US healthcare spending per capita was more than twice the average spending of the 35 countries that make up the OECD. And yet, the US health system delivers significantly less-favourable health outcomes than many of these countries on measures such as life expectancy and the incidence of chronic illness.
4. According to one estimate, waste in the US health system is responsible for approximately $750 billion in avoidable costs each year. See Mark Smith et al. (eds.), "Best Care at Lower Cost: The Path to Continuously Learning Health Care in America", National Academies Press, 2013; available at: http://www.hep.fsu.edu/~wahl/artic/NAP/HealthCare13444.pdf (link as of 20/11/18).
5. For more on what value means in healthcare, see "Value in Healthcare: Laying the Foundation for Health System Transformation", World Economic Forum, April 2017; available at: http://www3.weforum.org/docs/WEF_Insight_Report_Value_Healthcare_Laying_Foundation.pdf (link as of 20/11/18).
6. For more detail on the work of the Value in Healthcare project, see "Value in Healthcare: Laying the Foundation for Health System Transformation," and "Value in Healthcare: Mobilizing Cooperation for Health System Transformation, World Economic Forum, January 2018; available at: http://www3.weforum.org/docs/WEF_Value_Healthcare_report_2018.pdf (link as of 20/11/18).
7. ICHOM is an independent non-profit that convenes global working groups of clinicians, patient representatives and other leading experts to define and publish globally harmonized sets of outcome metrics for specific conditions, diseases and population segments. As of the third quarter of 2018, the consortium has published 24 such standard sets, covering cover 54% of the global disease burden. Currently, some 650 hospitals in more than 40 countries have launched initiatives to track at least one of the ICHOM standard sets. To learn more about ICHOM's work, see "Value in Healthcare: Laying the Foundation for Health System Transformation", or visit www.ichom.org (link as of 20/11/18).
8. For more on the concept of "collective impact", see John Kania and Mark Kramer, "Collective Impact", Stanford Social Innovation Review, Winter 2011; available at: https://ssir.org/articles/entry/collective_impact (link as of 20/11/18).
9. For an interesting argument on the importance of cooperation in complex adaptive systems such as healthcare, see Martin Reeves et al., "The Biology of Corporate Survival", Harvard Business Review, January-February 2016; available at: https://hbr.org/2016/01/the-biology-of-corporate-survival (link as of 20/11/18). For a broad historical perspective on the centrality of cooperation in the development of human civilization, see Yuval Noah Harari, "Sapiens: A Brief History of Mankind", Harper Collins, 2015.
10. See "Value in Healthcare: Laying the Foundation for Health System Transformation", World Economic Forum, April 2017.
11. For more on the Santeon experience, see Oluwakemi Okunade et al., "Collaborating for Value: The Santeon Hospitals in the Netherlands", ICHOM Case Study, June 2017; available at: http://www.ichom.org/news/case-study-collaborating-for-value-the-santeon-hospitals-in-the-netherlands/; and "How Dutch Hospitals Make Value-Based Health Care Work", Boston Consulting Group and Santeon, June 2018; available at: https://www.bcg.com/en-us/publications/2018/how-dutch-hospitals-make-value-based-health-care-work.aspx (links as of 20/11/18).
12. Santeon has subsequently added value-based initiatives for additional patient groups focused on kidney disease, colorectal cancer and childbirth. For more information, see "How Dutch Hospitals Make Value-Based Health Care Work".
13. For more on the Canadian initiatives, see "Value-Based Healthcare Summit: Transforming Healthcare by Redefining Value", Canadian Foundation for Healthcare Improvement, March 2018; available at: https://static1.squarespace.com/static/5a67b88e90bcce0ef0c02849/t/5b36a1ca6d2a73ae8f5929f2/1530307027118/VBHC-summit-final-report-e.pdf; and Jennifer Zelmer, "Identifying the Most Promising Opportunities for Value-Based Healthcare", Canadian Foundation for Healthcare Improvement, August 2018; available at: https://www.cfhi-fcass.ca/sf-docs/default-source/documents/health-system-transformation/vbhc-design-day-outcomes-summary-e.pdf (links as of 20/11/18).

14. For more on the concept of leapfrogging, see "Health Systems Leapfrogging in Emerging Economies", World Economic Forum, January 2014; and Jad Bitar et al., "Leapfrogging – Value-Based Healthcare Comes to Emerging Markets", Boston Consulting Group, August 2016; available at: https://www.bcg.com/en-us/publications/2016/health-care-payers-providers-leapfrogging-value-based-health-care-comes-to-emerging-markets.aspx (link as of 20/11/18).
15. For more on EUREQUO, see "EUREQUO Annual Report 2017", Society of Cataract and Refractive Surgeons, 2018; available at: http://www.eurequo.org/wp-content/uploads/2018/11/EUREQUO_Annual_Report2017.pdf (link as of 20/11/18).
16. Medicare Advantage is a government-approved category of managed care plans offered by a private insurers for Medicare-eligible individuals. When an individual joins a Medicare Advantage plan, Medicare pays a set fee to the plan to cover all of the individual's healthcare needs.
17. For more on HCCI, see Andrea Taylor et al., "Expanding Access to Low-Cost, High-Quality Tertiary Care: Spreading the Narayana Health Model Beyond India", The Commonwealth Fund, 2017; available at: https://www.commonwealthfund.org/publications/case-study/2017/nov/expanding-access-low-cost-high-quality-tertiary-care; and Vijay Govindarajan and Ravi Ramamurti, "Is this the Hospital that Will Finally Push the Expensive U.S. Health Care System to Innovate?", *Harvard Business Review*, June 2018; available at: https://hbr.org/2018/06/is-this-the-hospital-that-will-finally-push-the-expensive-u-s-health-care-system-to-innovate (links as of 20/11/18).
18. For more on the concept of reverse innovation, see Vijay Govindarajan and Ravi Ramamurti, "Reverse Innovation in Health Care: How to Make Value-Based Delivery Work", Harvard Business Review Press, 2018.
19. For a more detailed description of the Atlanta pilot, see "Value in Healthcare: Mobilizing Cooperation for Health System Transformation", World Economic Forum, January 2018.
20. According to Wounds Canada, a non-profit organization, DFUs represent one of the top priorities for wound prevention and management in Canada. The patient advocacy association Diabetes Canada estimates that, of the 1.5 million people in Ontario living with diabetes in 2015, somewhere between 16,600 and 27,600 had a DFU, and nearly 2,000 had required below-the-knee amputation as a result. DFU and its resulting complications also represent a major source of cost in the Ontario health system, responsible for approximately CAN $400 million ($300 million) per year in direct costs. What's more, evidence suggests that Canadian outcomes for DFU and its resulting complications lag global benchmarks. In 2015 (the most recent year for which data is available), Canada had 7.4 amputations for every 100,000 people – a rate 57% higher than the OECD median of 4.7. Fortunately, there is also considerable evidence that targeted interventions can significantly improve the rate of DFU-related amputations. As many as 85% of amputations due to DFU are preventable if the anticipatory symptoms are caught in time. And according to the Canada Institute of Health Information, the cost of effective prevention is between 10 and 40 times cheaper than the cost of amputation.
21. For more on the concept of "authorizing environment", see Matt Andrews et al., "Managing Your Authorizing Environment in a PDIA Process", Harvard University Center for International Development Working Paper No. 312, January 2016; available at: https://bsc.cid.harvard.edu/files/bsc/files/authorizing_environ_cid_wp_312.pdf (link as of 20/11/18). For more on the concept of "holding environment", see Ronald A. Heifetz, "Leadership without Easy Answers", Harvard University Press, 1998; and Ronald A. Heifetz, Marty Linsky and Alexander Grashow, "The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World", Harvard Business Press, 2009.
22. For more information on this initiative, see https://cloudblogs.microsoft.com/industry-blog/industry/health/microsoft-amazon-google-and-ibm-issue-joint-statement-for-healthcare-interoperability/ (link as of 20/11/18).
23. For more information on Estonia's e-health initiative, see https://e-estonia.com/solutions/healthcare/e-health-record/ and https://www.eu2017.ee/news/press-releases/estonias-unique-e-health-thousands-data-fields-one-personal-health-record (links as of 20/11/18).
24. See National Guardian for Health and Care, "Review of Data Security, Consent and Opt-Outs", UK Government, 2016; available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/535024/data-security-review.PDF (link as of 20/11/18).
25. See Gabe Maldoff, "How GDPR Changes the Rules for Research", International Association of Privacy Professionals, April 2016; available at: https://iapp.org/news/a/how-gdpr-changes-the-rules-for-research/ (link as of 20/11/18).

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