White Paper

Managing Health

From Healthcare Provider to Comprehensive Health Manager

Preparing for the shift from curative to preventive and value-based healthcare

siemens.com/healthineers

SIEMENS Healthineers

Executive summary

If the health systems currently in place around the world remain unchanged over the coming decades, growing demand and limited resources will render them unsustainable. A global trend toward comprehensive health management is emerging, driven by the need to lower costs for care but still improving health. One aim is to heal patients as quickly as possible and stabilize chronically ill patients using quality treatment and seamlessly coordinated care. Even more important, comprehensive health management seeks to prevent people from becoming ill in the first place.

These trends will increasingly change the role of healthcare providers. Population health management is becoming more important. To succeed, healthcare providers will have to use complex data analytics to identify at-risk groups within a population and initiate preventive measures in healthy times.

New, value-based payment models from government and private payers are challenging hospitals to develop methods of care delivery that will keep patients out of the hospital by focusing on wellness, prevention, and the effective management of chronic diseases. Healthcare providers that successfully rise to this challenge will be rewarded – not only by the incentives offered by new compensation models, but also by higher patient satisfaction and the chance to reach out to new customers.

Dr. Bernd Montag
Chief Executive Officer
Siemens Healthineers

"Healthcare is changing and the industry is working harder than ever to discover new ways of improving patients' health. In times of change where it is all about improving outcomes and lowering costs, we understand the challenges you're facing – and your need to continually improve clinical, operational, and financial efficiency. We look forward to partnering with you and working jointly on your business success."

Introduction

The term "management" has established itself worldwide as a synonym for actively running a business to meet commercial goals. Business management approaches are now also used in areas outside the private sector. Besides the efficient management of individual organizations, the focus here is usually on higher-level optimization targets – such as sustainability, social justice, and overall economic benefits – across the economy as a whole.

The healthcare sector is no exception. Much like an intact environment or a high level of education, a healthy population is considered a social and economic asset and a competitive advantage for a region. Today's separation of care into different and independently working sectors, institutions, and departments is no longer sufficient to help maintain good health. Healthcare management must take an holistic view of the health of people or entire populations, rather than applying episodic and transaction-based treatments. This white paper describes how the frameworks for healthcare providers worldwide is changing, and presents ways of responding to this trend.

1. **Reasons to read:**
   Why we need to manage health **4**

2. **Evidence:**
   Population health management and value-based compensation are on the rise **8**

3. **Strategy:**
   How to succeed in value-based settings **15**

Key takeaways **18**

References **19**

1. Reasons to read:

Why we need to manage health

Managing health is key for sustainable healthcare provision in an aging world with a growing demand for medical care.

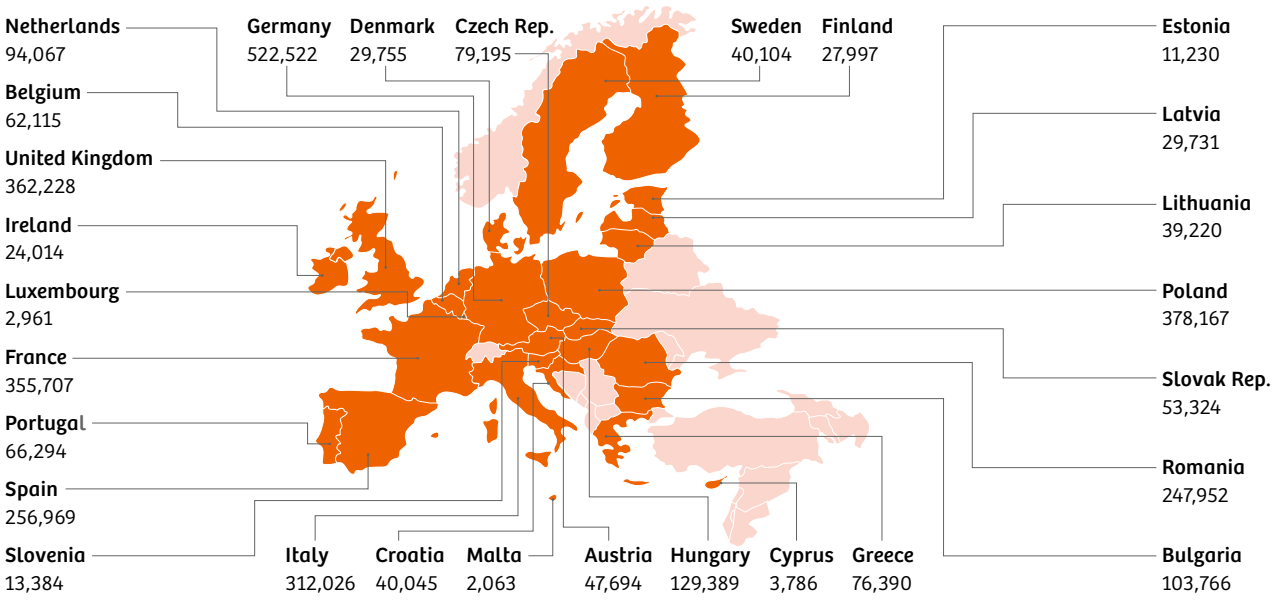
Personal health is not a purely personal matter: Almost every country around the world has a healthcare system financed by taxes, social security contributions, and / or private insurance contributions. These systems are designed to give people in need access to diagnosis and treatment regardless of their financial situation.

One of the reasons why countries provide this support is that a healthy, productive community is of macrosocial advantage. In detail, this means that illness not only creates diagnosis and treatment costs, but also leads to a loss of manpower, higher unemployment, and lower productivity. Data from the OECD and EU suggest that lifestyle diseases such as strokes, heart attacks, and diabetes cause an annual loss of about 3.4 million potential productive life years in EU countries (including the U.K.). Over 500,000 years are lost in Germany, and more than 350,000 each are lost in France and the U.K.[1] As a result, in more affluent countries, healthcare systems are predominantly publicly financed. In the EU, the average share of public spending in total healthcare expenditure is almost 80 percent. Other high-income countries such as Japan and Canada have similarly high levels of public spending.

Global trends, however, such as demographic change, increasing chronic diseases, and rising costs of modern diagnostics and treatments pose a threat to the long-term fundability of many health services. This is also true for emerging economies, where rapid economic development is generating more demand for healthcare. Depending on the system, rising healthcare expenditure places a burden on taxpayers, employers, private insurers, and / or self-pay patients. Industry experts therefore see a global need for action. For instance, corporate consultancy firm PwC warns: “At the current rate of consumption and at the current level of thinking, the healthcare organizations of today will be unable to meet demand in the future.”[2]

Non-communicable diseases lead to the loss of 3.4 million potential productive life years in EU countries[1]

Potential productive life years lost related to non-communicable diseases among people aged 25 – 64, EU countries, 2013



Source: OECD estimated based on Eurostat data

Health is therefore an important competitive factor for economies, regions, and businesses. As PwC notes: "In a world in which economies are globally interdependent and the productivity of nations relies on the health of its citizens, the sustainability of the world's health systems is a national competitive issue and a global economic imperative."[2]

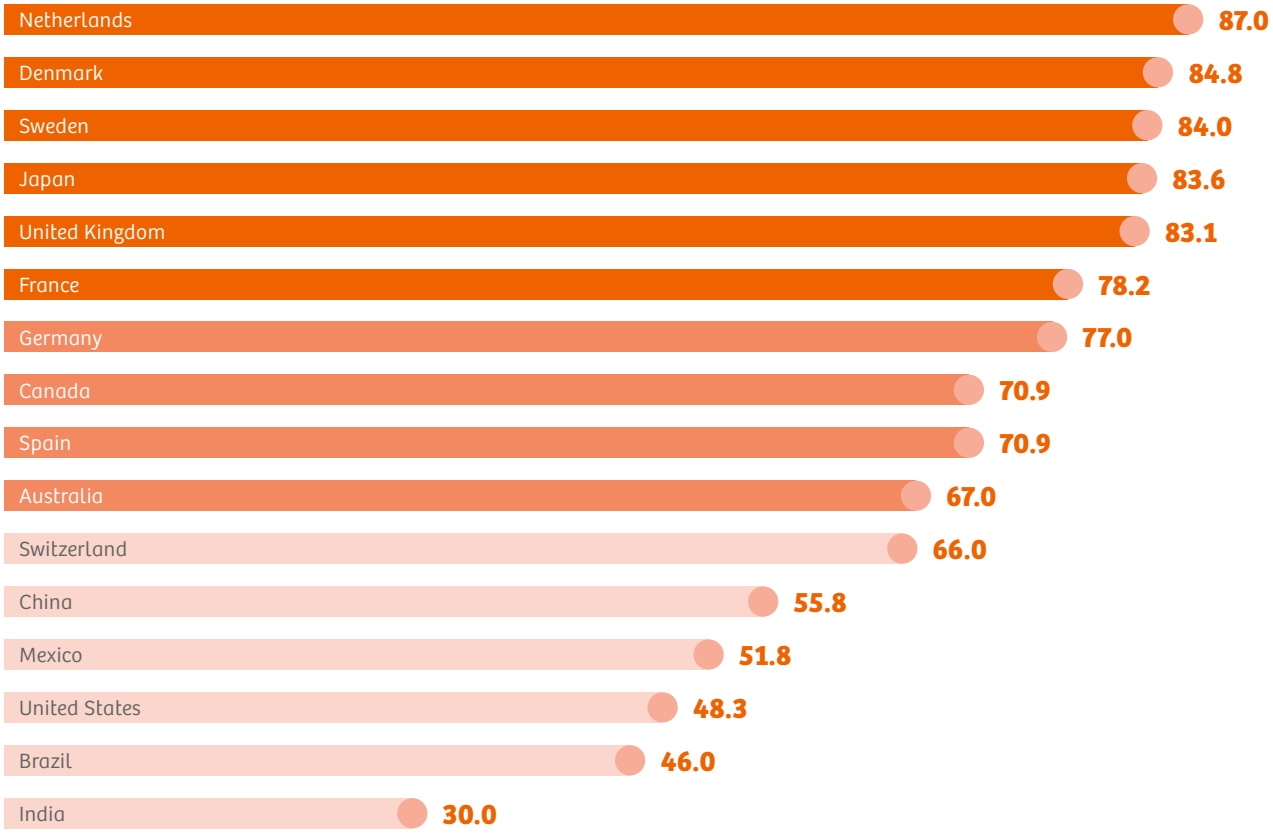
In particular, therefore, countries with a high public share of healthcare spending (e.g., those in the EU) must find a more systematic way of managing the demand for and the use of health services along the treatment chain and, above all, across all stages. The idea is to avoid both overuse and underuse. Stefan Larsson, global leader of The Boston Consulting Group's healthcare payers and providers sector, says, "Managing health means preventing disease for someone who does not have a diagnosis. And, when it comes to someone who has a disease, getting the best possible result."[3]

"Managing health means preventing disease for someone who does not have a diagnosis. And, when it comes to someone who has a disease, getting the best possible result."[3]

Stefan Larsson,
Boston Consulting Group

The situation in the U.S. is particularly disturbing: The world's largest industrial nation has by far the highest rate of healthcare spending. At around $9,400 per capita, its average expenditure in 2014 was almost 2.7 times as much as the EU average (approximately $3,500).[4] What is more, it has now risen to nearly $10,000.[5] Compared with other high-income countries, the share of private healthcare spending in the U.S. is above average, standing at more than 50 percent.

Public health expenditure around the world (% of total health expenditure)[6]



Source: World Bank, 2014

Systematic, holistic healthcare management includes measures for prevention and early detection, and for case and disease management. All of these can make a significant contribution to reducing healthcare costs. Many countries are still far from fully realizing this potential. For instance, 45 percent of all Americans have at least one chronic condition. This alone accounts for more than 75 percent of national healthcare spending. Analysts note that identifying these high-risk patients at an early stage and implementing proactive disease and case management programs for seven of the most common chronic diseases (including cancer, diabetes, and strokes) could save $1.1 trillion in direct costs (treatment) and indirect costs (lost economic output) by 2023.[7]

The U.S. could save $1.1 trillion by improving prevention and disease management for its seven most common chronic diseases.[7]

Even in countries where healthcare spending is low and public healthcare systems are still being established, population-wide health management should be considered while people are still in good shape. Providers and policymakers in emerging markets have powerful incentives for organizing their health systems around maximizing healthcare value for their populations. Their healthcare spending is growing at a much faster rate than that of developed countries. Since 2000, for example, China's spending on healthcare as a percentage of GDP has grown nearly five times as quickly as that of the EU, and more than three times as fast as that of the U.S.[8] It is therefore all the more important to use scarce resources – e.g., vaccinations, health education, and mobile services for better access to diagnosis and medical advice – as effectively and efficiently as possible.

2. Evidence:

Population health management and value-based compensation are on the rise

Risk-sharing and value-based payments are changing healthcare systems and creating a need for new approaches to management.

Payers and policymakers worldwide are starting to focus on ways of cutting costs in the healthcare sector. At the same time, the outcomes of the services are subject to increasing scrutiny. Value rather than volume is becoming the key performance indicator. Value is defined as patient outcome divided by cost.[9] Globally, we are seeing a trend toward value-based healthcare management. This has implications for remuneration models and hospital budgets, and is creating a greater demand for transparency and measurability of treatment quality and outcomes. Dutch hospitals, for example, must publish their waiting lists online. Many other countries publish hospital rankings.

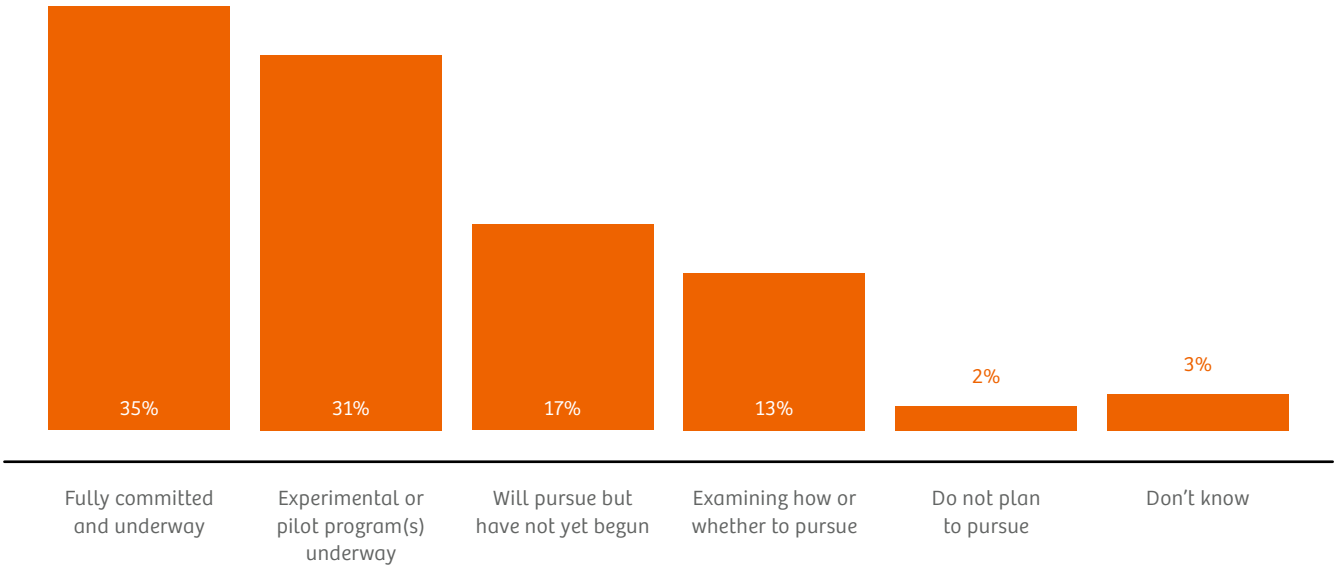
Value = Outcome / Cost

U.S.: Value-based care is high on the management agenda

In the U.S., discussions about value-based healthcare have gained a great deal of momentum since the Patient Protection and Affordable Care Act was introduced in 2010. The Health Department has set the goal of tying 50 percent of payments to value-based healthcare payment models by 2018.[10] The target is already proving effective: Two-thirds of all healthcare organizations are either fully underway with the transition to value-based care, or are at least running experimental or pilot programs.

From fee-for-service to value-based care[11]

"What is your organization's status regarding the transition from fee-for-service to value-based care?"

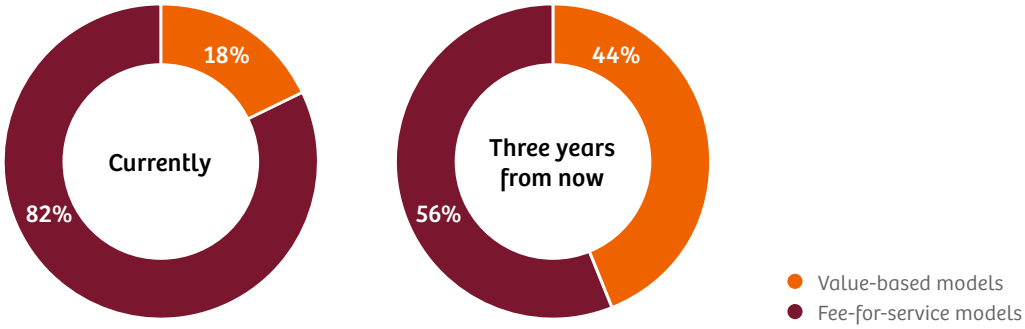


Source: HealthLeaders Media Industry Outlook 2017

Although 82 percent of net patient revenue at these organizations still comes from fee-for-service models, the growth prospects are strong, with respondents expecting value-based payment models to account for 44 percent of net patient revenue by 2020.[11]

Revenue from value-based payments is growing[11]

"What share of net patient revenue does / will value-based and fee-for-service models represent at your organization?"



Source: HealthLeaders Media Industry Outlook 2017

The shift in focus to value and outcome is combined with new payment models such as bundled payments, pay-for-performance (P4P), shared savings, shared risk, and global capitation. Payers such as Medicare, Medicaid, and commercial health plans are looking for strategies that use incentives to achieve better value. Legislation such as the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) is also encouraging more healthcare organizations to adopt alternative payment models.[12]

To date, Medicare has been a major driver for bundled payment initiatives. The Centers for Medicare and Medicaid Services Innovation started testing the first bundling model – the Bundled Payments for Care Improvement (BPCI) initiative – in 2013. Under the initiative, organizations enter into payment arrangements that include financial and performance accountability for episodes of care.[13] For example, in the past, if a patient required knee replacement surgery, Medicare or a private health plan would pay the specialist, hospital, and post-acute care provider separately. Under BPCI, Medicare might still pay for these services separately, but will compare total spending against a target after the episode has ended.

For providers, this model has two sides: If total spending exceeds the target, they have to return some of the payment. However, if they save money, they are allowed to keep some of the savings. This arrangement gives providers an incentive to find ways of lowering costs and improving care, for instance by reducing complications and readmissions.[12]

What are value-based payment models?

Healthcare organizations are experimenting with variations and combinations of five value-based payment models.

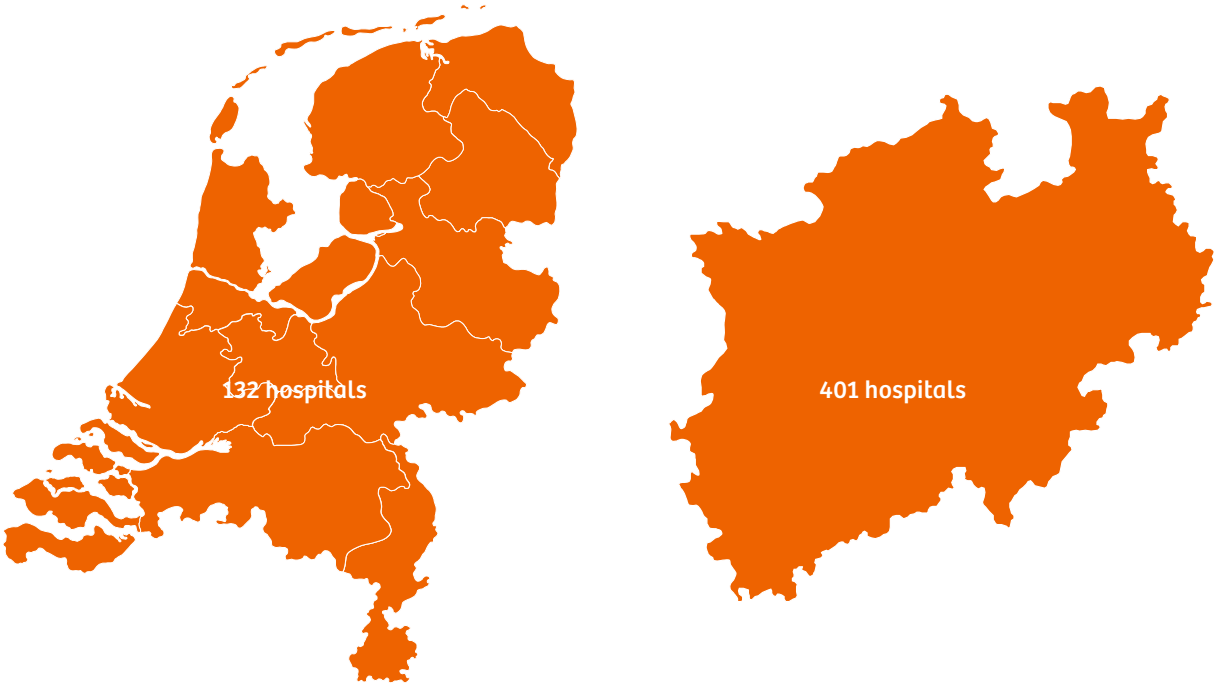
1. **Shared savings:** This model generally involves an organization being paid via the traditional fee-for-service model. At the end of the year, however, total spending is compared against a target. If the organization's spending is below the target, it can keep some of the difference as a bonus.
2. **Bundles:** Instead of paying separately for hospital, physician, and other services, a payer bundles payments for services linked to a particular condition, reason for hospital stay, and period of time. If the organization saves money by reducing spending on any of the components of care included in the bundle, it can keep it.
3. **Pay-for-performance:** This reimbursement model is designed to create financial incentives for improving quality. A certain amount of the provider's reimbursement is linked to performance measurements.
4. **Shared risk:** This is the other side of shared savings. If an organization's expenditure exceeds the target, it must repay some of the difference as a penalty.
5. **Global capitation:** An organization receives on average a per-person, per-month payment that should pay for all of the individual's care, regardless of what services are used.

Europe: A healthcare policy that puts quality before quantity

The national healthcare systems in Europe are to a significant extent publicly financed – i.e., from taxes or income-based social security contributions. Equal access is therefore a key issue in healthcare policy. However, in order to optimize the use and fairness of limited financial resources as requirements rise, both reimbursements and public funding for hospitals are increasingly being oriented toward value.

In this regard, representatives of Germany's statutory health insurance funds say that hospital density is unnecessarily high. For instance, the state of North Rhine-Westphalia has more than three times as many hospitals as the Netherlands, which has roughly the same surface area and population, and a comparable level of medical care. Consolidating the hospital locations could improve profitability and medical quality, says Wulf-Dietrich Leber, head of the hospitals division at Germany's National Association of Statutory Health Insurance Funds: "We need more quality than quantity in medical treatment."[14]

Too many hospitals, too few cases?[14]



The Netherlands
Population: 16.7 million
Area: 41,500 km²

North Rhine-Westphalia
Population: 17.9 million
Area: 34,000 km²

Source: GKV Spitzenverband 2017

"We need more quality instead of quantity in medical treatment."[14]

Wulf-Dietrich Leber,
German National Association of Statutory Health Insurance Funds

Germany's Hospital Structures Act[15], which became effective in 2016, took the country a step closer to more transparency and quality-oriented payment models. In the future, failing to comply with quality criteria could result in closure of a department or an entire hospital.

Disease management programs for chronically ill patients can also be classified as value-oriented approaches. In recent years, several European countries have introduced or tested programs for individual patient groups. A common objective of these programs, which accompany the patient's treatment, is to reduce hospital admissions and emergency visits through better care coordination, managed discharge, and case management. They also aim to achieve better outcomes by strengthening cooperation between professionals in primary healthcare and hospital care for the patient's benefit. These kinds of programs exist in countries such as Austria, Denmark, France, Germany, Italy, the Netherlands, Switzerland, and the U.K.

In Denmark, over one in six people suffer from diabetes, chronic obstructive pulmonary disease (COPD), or arthritis. As part of a national reform initiative, the government has allocated €160 million for the period 2016 – 2019 to tackle this problem. The aim of the funding is to identify chronic diseases earlier and improve treatment by intensifying cooperation between different healthcare providers at the local, regional, and national level. For instance, patients now receive an individual action plan that promotes patient awareness, patient empowerment, and active participation in the treatment and management of their disease. The government has also presented an action plan for lung diseases, with the aim of strengthening early detection of COPD and childhood asthma. This plan also includes the expansion of national telemedicine projects. Another national action plan, this time for older patients (which is receiving €40 million in funding), focuses on initiatives to prevent unnecessary hospitalization.[16]

In the Netherlands, family physicians (FP) have traditionally played a key role in medical care. Patients can only access specialists and hospital care after referral by their FP. More than 95 percent of all episodes of care are fully covered in primary care. A healthcare reform that was introduced in 2006 strengthens value-based payments in this sector. Individual FPs or FP practice groups have listed patient panels for whom they are responsible in terms of population and personal health (the average panel covers between 2,250 and 2,500 people living in a defined area). Health insurers now pay FPs capitation for patients on their list (70 percent of the overall practice income), and 30 percent separately as a fee for service. Specialists and hospitals are still paid for the actual services, but private insurers compare outcomes and try to negotiate the best care at the best price. Practice consortia are contracted to provide chronic care management and to help implement evidence-based guidelines, thus providing accountable care. FPs that fail to meet these standards may be excluded from the consortium.[17]

Global view: Private and public initiatives for more value worldwide

We can find more examples in many other countries. For instance, Japan's shift from medication to prevention is reflected in several initiatives for "extending the healthy lifespan of the people", a goal set in the Japan Revitalization Strategy. Since 2014, the Ministry of Economy, Trade and Industry has recognized enterprises that focus on and strategically implement health and productivity management for their employees.[18]

In Australia, government policymakers generally realize that bending the cost curve on health spending requires an approach that focuses on population health. The government is responsible for population health management, and initiatives are largely managed through the country's Primary Health Networks. Social marketing campaigns targeting obesity, smoking, alcohol, and other drugs have been run at various times with variable results.[19]

Mexico is also pushing public health programs and resources for prevention. Worldwide, the country has the highest prevalence of overweight and obese children, and more than 70 percent of its adults are overweight. In 2013, Mexico's president launched the National Strategy on the Prevention and Control of Overweight, Obesity, and Diabetes.[20] In 2014, the country introduced a sugar tax on sweetened beverages. Initial studies indicate that this has reduced sales of sugar-rich products including drinks.[21]

Promising private-sector approaches for value-driven care delivery can be found in developing countries. India, for instance, has the Aravind Eye Care System. Aravind was founded as an 11-bed hospital with the aim of providing an alternate healthcare model that could supplement the government's efforts while also supporting itself. Today, as a global leader in tracking health outcomes for cataract surgery and in creating innovative care-delivery models, Aravind brings high-quality, affordable cataract surgery to India's masses.[8] In the year ending March 2016, Aravind treated 4.7 million outpatients and performed more than 408,000 surgeries.[22]

3. Strategy:

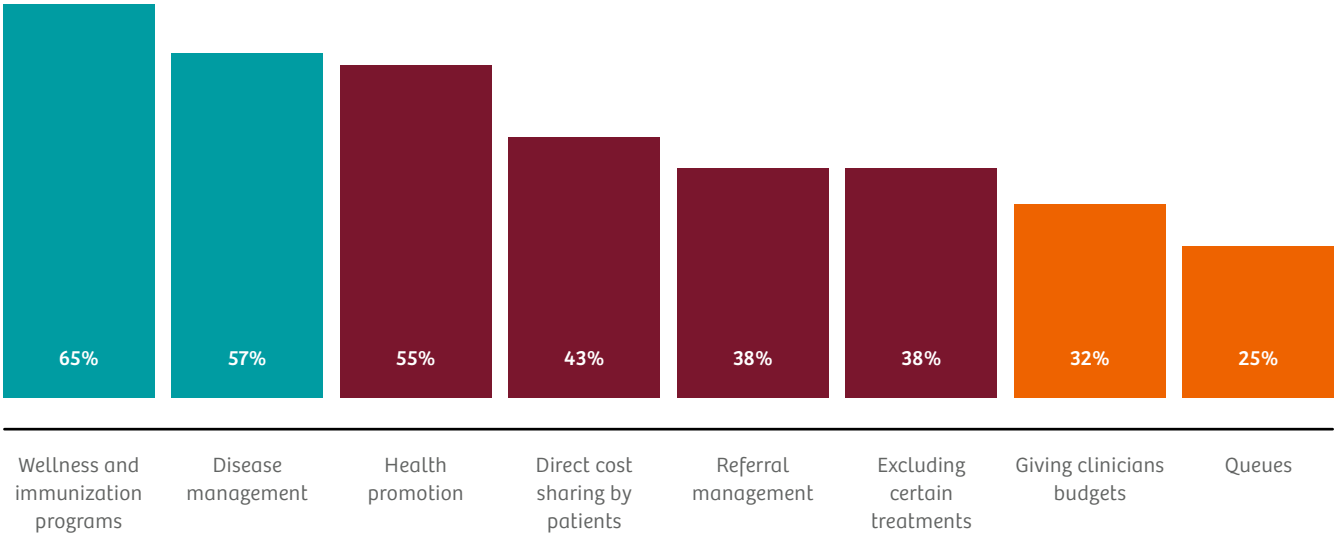
How to succeed in value-based settings

Healthcare systems around the globe should develop and implement strategies to improve outcomes and contain costs.

Healthcare organizations need to keep pace with changing economic and social circumstances. They also face numerous management challenges. These include reducing clinical and financial risks more effectively; integrating healthcare, mental care, and behavioral care; and moving from a break / fix model to one that fosters preventive and personalized care.[19] In the future, organizations will have to manage demand instead of just handling it.

Effective methods for managing demand[2]

"Which of the following methods of demand management do you consider to be effective?"



Source: PWC HealthCast 2020 Survey (based on extensive global research and in-depth interviews with healthcare executives and government leaders in 16 countries)

Depending on the market environment, competitive landscape, and political conditions, very different approaches can lead to the desired outcome. While there is no such thing as the perfect health system, there are examples of good practice in most countries that can provide valuable lessons for other healthcare stakeholders.[19]

Collaboration and sharing data

Increasingly, healthcare providers such as hospitals, physicians, long-term care facilities, health plans, and other commercial health-related entities are recognizing the benefits of working together. They establish collaborative partnerships and affiliations to improve outcomes and deliver value-based health services. An organization cannot, however, effectively manage value-based care if it can only access the information in its own system. Healthcare providers need access to data that their own IT department does not control. And, they need the technology and knowledge to analyze it. Partnerships set up to exchange critical health information for mutual benefit can involve the following:

- Loose networking, as is the case with disease registries
- Coordination, where partners coordinate programs (e.g., for obesity prevention)
- Cooperation, where multiple organizations share resources but continue to function as separate entities
- Collaboration, where partners share resources and merge programs to create a more formal operational model, such as a patient-centered medical home or an accountable care organization)[23]

In the U.S., more than 200 regional health information organizations have been established by consortiums of hospitals, physicians, and payers to create local networks of electronic health records.[1] Solutions for shared-data platforms also exist at the public level. The Department of Population Health at NYU School of Medicine has developed a City Health Dashboard to help cities understand, compare, and act to improve health and mitigate health risks in their municipalities.[24]

Integrated care

Research shows that consumers often do not differentiate between necessary care (such as primary care visits and preventive care that can limit emergency department and inpatient stays) and unnecessary care (such as high-tech scans at the first sign of symptoms.)[25] This leads to overuse, underuse, and avoidable costs. Integrated care brings together the various groups involved in patient care so that, from the patient's perspective, the services delivered are consistent and coordinated. Integration can take place between primary care and secondary care, between healthcare and community care (e.g., for disabled or elderly people), and between payers and providers. Dedicated projects focusing on integrated care already exist. These include the Integrated Practice Unit (IPU) at the West German Headache Center, which has reported impressive results: Organizing care in a standardized manner around specific medical conditions has lowered costs by 20 percent and has improved patient symptoms by 54 percent.[26]

Patient education

There is growing recognition among governments, payers, and providers that patients themselves have a formative influence on their health and the success of their treatments. Virta Health, an American company founded in 2014, developed a business model based on this. The online specialty medical clinic individually trains and motivates patients with type 2 diabetes to change their lifestyle so that they can significantly reduce their medication. The approach appears to be successful.[27, 28]

Retail clinics

Inexpensive, uncomplicated, fast, and close-to-home access to healthcare and chronic care services is good for both patients and payers. Providence Health & Services, a large health system in the U.S., is focusing on access points that move care closer to patients' homes. New modalities include express clinics, virtual visits, on-site employer-based clinics, and home visits – all designed to support the system's population health management initiatives. By mid-2017, Providence will open 50 Express Care clinics, half of them located in Walgreens stores. Studies show that a consumer is likely to visit a Walgreens store 20 to 30 times a year. Initially the clinics will offer traditional retail-clinic services such as strep tests and flu shots, but eventually they will expand to provide chronic care management.[25]

Telemedicine and virtual care

Increasing numbers of public and private health systems are embracing technology-enabled virtual care. This includes online health, telehealth, mobile health, and wearable and implantable patient monitoring devices. Beyond the quest for efficient treatments, telehealth aims to close care gaps, especially in remote areas. All over the world, start-ups are trying to gain a foothold in this promising market. RingMD is one example. This online platform allows patients to connect with doctors by video or telephone from anywhere in the world. Patients can schedule a consultation in just a few minutes.[29]

Providing care for patients outside hospital settings often brings advantages in terms of cost and competition. The University of Pittsburgh Medical Center (UPMC) Health System is using telemedicine as a key strategy for its move to value-based care delivery. Telehealth allows UPMC to manage patients better and thus reduce avoidable hospitalizations and visits to the emergency department.[25] Furthermore, an analysis of 542 televisits found that they cost on average $87 less than visits to the emergency department, urgent care departments, retail clinics, or primary care facilities. The telemedicine program has also considerably expanded UPMC's catchment area: As well as reaching small or rural community hospitals and outpatient locations, UPMC now even provides telemedicine services to overseas hospitals and other healthcare institutions around the world in countries such as China, India, Singapore, Colombia, Mexico, and Italy.

Key takeaways

1. "Reducing costs while improving outcomes" as the industry mantra

There is growing evidence that the current health systems of countries around the world will be unsustainable if they remain unchanged over the coming decades. Healthcare organizations and governments are urgently seeking solutions to reduce costs while also fulfilling the need for access to safe, high-quality care.

2. Good health is an important competitive factor for economies worldwide

Illness is not only associated with direct costs for diagnosis and treatment, but also with loss of manpower, higher unemployment, and lower productivity. States, regions, and companies have identified health as an important competitive factor for which funding must be secured and which needs to be taken care of.

3. Holistically managing health is key for sustainable health services

To maintain health as cost-effectively as possible, the traditional break / fix model with its focus on acute care is no longer sufficient. Rather than focusing on episodic and transaction-based treatments, health management requires all stakeholders (especially patients) to take a comprehensive view of health and the specific health risks of people and entire populations.

4. The transition to value-based payment models is well underway

Value, as the ratio between outcome and cost, is beginning to replace volume as a key performance indicator in health management – creating a greater demand for transparency and measurability of treatment quality and outcomes. The shift of focus to value and outcome is accompanied by new payment models.

5. Collaboration and integration across the industry are of utmost importance

Healthcare providers and other industry players should recognize the benefits of working together in collaborative partnerships and affiliations to improve outcomes and deliver value-based health services. Preventive care, population health management, and disease management programs require support and integration across the industry, moving beyond each organizations' borders.

6. The future will be about managing health instead of merely handling it

As there is no such thing as a perfect healthcare system, there is also no perfect solution. However, there are examples of good practice – such as collaborations, integrated care, patient education, retail clinics, and telemedicine – which have a great deal of potential for improving the way health is managed.

References

1. OECD and European Commission. (2016). Healthcare at a Glance, Europe 2016. https://www.oecd.org/els/health-systems/Health-at-a-Glance-Europe-2016-CHARTSET.pdf. Accessed June 13, 2017.
2. PwC. (2005). HealthCare 2020: Creating a Sustainable Future. http://www.pwc.com/il/he/publications/assets/2healthcast_2020.pdf. Accessed June 13, 2017.
3. Siemens Healthineers Company Presentation (2017). Slides: Managing Health Statement Slides Stefan Larsson BCG. Accessed June 13, 2017.
4. World Bank Open Data. (2017). Health expenditure per capita. http://data.worldbank.org/indicator/SH.XPD.PCAP.PP.KD. Accessed June 13, 2017.
5. Centers for Medicare & Medicaid Services CMS, National Health Expenditures 2015 Highlights. https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/downloads/highlights.pdf. Accessed June 13, 2017.
6. World Bank Open Data. (2017). Health expenditure, public,. http://data.worldbank.org/indicator/SH.XPD.PUBL. Accessed June 13, 2017.
7. Ernst & Young LLP. (2014). Health Industry Post, Population health management: A strategy for success in the new age of accountable care. http://www.ey.com/Publication/vwLUAssets/Health_Industry_Post_population_health_management/$FILE/Health_Industry_post.pdf. Accessed June 13, 2017.
8. Bitar J, et al. (2016). Leapfrogging: Value-based Healthcare Comes to Emerging Markets. BCG Perspectives. www.bcgperspectives.com/content/articles/health-care-payers-providers-leapfrogging-value-based-health-care-emerging-markets/#chapter1. Accessed June 13, 2017.
9. Porter ME, Teisberg EO. (2006). Redefining Health Care: Creating Value-Based Competition on Results. Harvard Business School Press. http://www.hbs.edu/faculty/Publication%20Files/20060502%20NACDS%20-%20Final%2005012006%20for%20On%20Point_db5ede1d-3d06-41f0-85e3-c11658534a63.pdf. Accessed June 13, 2017.
10. U.S. Department of Health & Human Services. (2016). 2015 Annual Progress Report to Congress: National Strategy for Quality Improvement in Health Care. AHRQ. https://www.ahrq.gov/workingforquality/reports/2015-annual-report.html. Accessed June 13, 2017.
11. HealthLeaders Media.(2017). Annual Industry Outlook: The Road to Value-Based Care. www.healthleadersmedia.com/report/intelligence/annual-industry-outlook-road-value-based-care. Accessed June 13, 2017.
12. Deloitte. (2017). Navigating bundled payments: Strategies to reduce costs and improve health care. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lshc-bundled-payments-report.pdf. Accessed June 13, 2017.
13. Centers for Medicare & Medicaid CMS. (2017). Bundled Payments for Care Improvement BPCI Initiative: General Information. https://innovation.cms.gov/initiatives/bundled-payments/. Accessed June 13, 2017.
14. Leber W-D. (2017). Krankenhausstrukturgesetz: Auftakt einer Neustrukturierung der Notfallversorgung. http://wulf-dietrich-leber.de/files/2017-05/wulf-dietrich-leber-berlin-29.03.2017-ikk-plattform-notfall.pdf. Accessed June 13, 2017.
15. Bundesministerium für Gesundheit. (2016). Krankenhausstrukturgesetz (KHSG). www.bundesgesundheitsministerium.de/themen/krankenversicherung/krankenhausstrukturgesetz/khsg.html. Accessed June 13, 2017.
16. Ministry of Health Denmark. (2017). Healthcare in Denmark: An overview. http://healthcaredenmark.dk/media/1479380/Healthcare-english-V16-decashx-3.pdf. Accessed June 13, 2017.
17. van Weel C., et al. (2012). Healthcare in the Netherlands. J Am Board Fam Med. www.jabfm.org/content/25/Suppl_1/S12.full. Accessed June 13, 2017.
18. Ministry of Economy Trade and Industry. (2017). METI Announces the Twenty-Four Enterprises Selected for the 2017 Health & Productivity Stock Selection. www.meti.go.jp/english/press/2017/0221_003.html. Accessed June 13, 2017.
19. Deloitte. (2017). Global Healthcare outlook: Making progress against persistent challenges. https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-2017-health-care-outlook.pdf. Accessed June 13, 2017.
20. World Health Organization. (2016). Country Cooperation Strategy: Mexico. http://apps.who.int/iris/bitstream/10665/250863/1/ccsbrief_mex_en.pdf. Accessed June 13, 2017.
21. Health Affairs Blog. (2017). Mexico's Sugar Sweetended Beverage Tax Shows Results. http://healthaffairs.org/blog/2017/02/22/health-affairs-web-first-mexicos-sugar-sweetened-beverage-tax-shows-results/. Accessed June 13, 2017.
22. Aravind Eye Care Systems. (2017). Hospital Services. http://www.aravind.org/default/servicescontent/ClinicalServices. Accessed June 13, 2017.
23. KaufmanHall. (2017). Readiness for Healthcare's Transformation. https://sfwebprodblob.blob.core.windows.net/sitefinity-libraries/docs/default-source/default-document-library/readiness-for-healthcare-39-s-transformation-from-providing-care-to-managing-health.pdf?sfvrsn=0. Accessed June 13, 2017.
24. Raths D. (2017). Dashboard Tracks Health Data at City Level. Healthcare Informatics. https://www.healthcare-informatics.com/news-item/population-health/dashboard-tracks-health-data-city-level?utm_campaign=Vertical+-+Pop+Health+and+Analytics&utm_source=hs_email&utm_medium=email&utm_content=42190136&_hsenc=p2ANqtz-95T0foVbVc-B_DIkY-OJnP1E7i_xK0xDt1dMbxv_5DU48Y_pVb09trEbm72lapHK8L9mx10IqmAQaXeEGPj18hkHxfmA&_hsmi=42190136. Accessed June 13, 2017.
25. Healthcare Financial Management Association. (2016). Healthcare 2020: Transition to Value. https://www.hfma.org/DownloadAsset.aspx?id=49981. Accessed June 13, 2017.
26. Harvard Business School. Integrated Practice Units: Organizing Care Around Patient Medical Conditions. http://www.isc.hbs.edu/health-care/vbhcd/pages/integrated-practice-units.aspx. Accessed July 17, 2017.
27. Virta Health. https://www.virtahealth.com/about. Accessed June 13, 2017.
28. McKenzie AL, et al. (2017). A Novel Intervention Including Individualized Nutritional Recommendations Reduces Hemoglobin A1c Level, Medication Use, and Weight in Type 2 Diabetes. JMIR Diabetes. https://diabetes.jmir.org/2017/1/e5/. Accessed June 13, 2017.
29. RingMD. www.ring.md. Accessed June 13, 2017.

Siemens Healthineers Headquarters
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen, Germany
Phone: +49 9131 84-0
siemens-healthineers.com

A91IM-0004-4C1-7600 • Printed in Germany • 5137 0817.1 •