Healthcare Horizons Revisited

Trailblazers, transformers and the 'how to' of healthcare transformation

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Executive summary

Charting a course to the future of healthcare is significantly challenging, but it is also full of opportunity. Several waves of crisis are affecting health systems across the globe, including rising demand among aging populations suffering high chronic-disease burdens, continuing workforce shortages and the harmful effects of climate change on health. Whether it concerns high, middle or low-income countries and territories, public or private, healthcare systems around the world are facing similar issues which often lead to compromised affordability, accessibility and quality of care.

To deal with these issues, we believe that a fundamental change of course in how healthcare systems operate is essential. Senior healthcare leaders should be seeking transformational and innovative approaches to sector problems as traditional interventions are no longer effective given the magnitude of the sector's unprecedented challenges.

About Healthcare Horizons Revisited

Healthcare Horizons Revisited examines innovative trailblazing examples and successful transformation programs from across the globe in order to derive insights on the 'how to' of healthcare transformation. This report is intended for leaders in healthcare provider, commissioner/payor and regulatory organizations.

In this report we bring you:

An overview of the need for transformation and why traditional approaches are unlikely to be effective

Five predictions for what inclusive and sustainable health systems could look like in the future based on trailblazer examples covering the future of workforce, hyper-integrated care, empowered communities, primary care at scale, and hospitals as high-tech hubs

Real-life stories featuring five successful transformation programs across the globe that created large-scale change in health systems, and the underlying drivers of these transformations in the fields of reimagined leadership, empowered workforces, data as lifeblood, and co-creation with communities

Actionable recommendations along with maturity matrices that map out the route from healthcare's current state to inclusive and sustainable future systems

Common transformation obstacles and practical advice on how to navigate around them

KPMG point of view

We often see technology heralded as the healthcare sector's savior. We have a different view on that. Although tech and the future of data will provide ample opportunities for improvement in the sector, a tech-only approach risks alienating workforces and increasing health inequities, leaving already vulnerable populations behind. If we truly want to achieve a future horizon of healthcare — where systems are sustainable and inclusive for all — we feel an approach is needed that positions technology, communities and workforces to be leveraged hand in hand.

The process of healthcare transformation is a journey and healthcare systems around the world are at different starting points. We hope that providing insights into the different ways organizations and leaders have charted their courses will inspire others globally with the courage to double down on their unique paths to sustainable and inclusive healthcare.

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Foreword

Imagine alleviating the global shortage of 10 million healthcare workers by having AI take on the 40 percent of time they spent on administrative tasks.

Imagine reducing emergency admissions of teenagers with mental health issues by 60 percent because their school nurses are supported remotely by a dedicated team of professional mental health workers.

Imagine avoiding the transfer of 74 percent of emergency patients to larger centers, by treating them closer to home using in-patient telehealth services that provide virtual ward rounds to patients in local health centers.
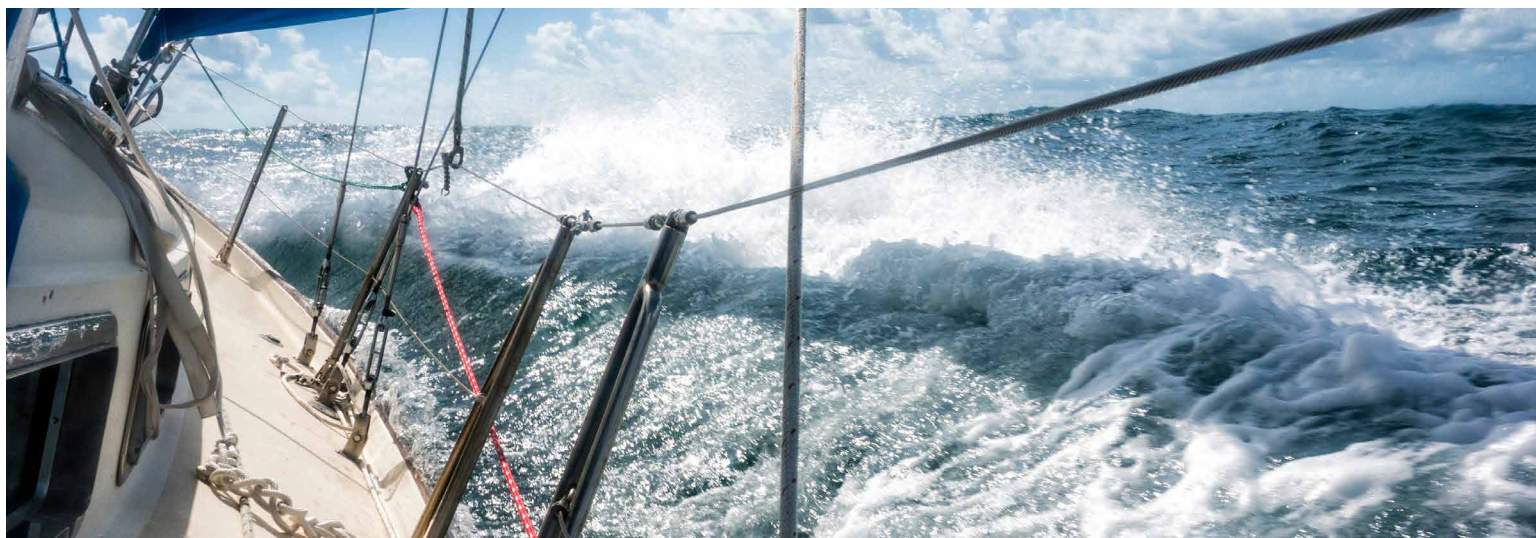
Imagining an inclusive and sustainable future for healthcare systems was the vision we had in mind when developing the original Healthcare Horizons report published by KPMG International in January 2023. It was heartwarming to see how much traction the report got, showing that there was a clear and urgent need for different approaches. The original report was translated into six languages and we've had more than five million content interactions[1] since its release. Traveling the world, I have shared these insights and had conversations with more than 2,000 senior healthcare leaders, from Sydney to Tokyo, Stockholm to Nairobi, Sao Paulo to New York. However, the key question that

remained in these conversations was 'How?' — expressing a need for practical guidance and real-life examples on navigating transformation.

This question made me realize that, despite the fact that the future sometimes seems doomy and gloomy, we need to share the much brighter horizon for healthcare that is possible. In my travels, I've heard so many 'trailblazing' examples of smart approaches that help to keep healthcare equitable and accessible: Providing high-quality care in even the most-remote places, building systems where prevention rather than complication rules, and where communities

and professionals work together to help vulnerable populations. And on top of that, I have seen strong examples of systems that have been able to create successful 'all-system' transformations for the future, proving that transformation is definitely within the 'art of the possible' in healthcare.

It was a true privilege for me to speak to leaders in the sector worldwide and see the examples that show us the road towards the future. But more than that, it gave me the inspiration to share these examples beyond my own scope. Creating an overview of 'trailblazers and transformers' that can help healthcare leaders worldwide to learn from each other, to be inspired by what has been done elsewhere, and to set our collective insights to work to create sustainable healthcare systems for the future.

I hope healthcare leaders find this report helpful and reassuring to know that they are not alone in their journeys. My colleagues at KPMG and I are certainly there, committed to helping leaders in the sector to make their systems and organizations, sustainable and inclusive.

Dr. Anna van Poucke
Global Head of Healthcare,
KPMG International
Healthcare Senior Partner,
KPMG in the Netherlands

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1 Number constitutes interactions with report content online, via social media and in-person events

The case for transformation

Five factors driving the need for change in how healthcare systems are operated

High, middle or low income, public or private, healthcare systems around the world are facing similar issues. Given the scale of these current and future challenges, traditional approaches such as flooding systems with money — without addressing underlying issues, training more healthcare professionals, utilizing travel or agency nurses and/or recruiting more foreign-trained nurses — are unlikely to be effective.

Based on KPMG professionals' industry experience working with healthcare payors and provider organizations around the world, below are the five factors we feel are driving the need for new approaches to how healthcare systems are operated.

01 Aging populations

People 60+

outnumber children <5

Source: WHO

According to the World Health Organization (WHO), in 2020 the number of people aged 60 years and older outnumbered children younger than five years.[2] In the future, the number of people aged 65 years or older worldwide is projected to more than double, rising from 761 million in 2021 to 1.6 billion in 2050.[3] With aging populations comes shrinking workforces and tax bases, a greater non-communicable disease burden and complex patient needs — driving up demand for healthcare services.

According to the Organisation for Economic Co-operation and Development (OECD), waiting times reflect the functioning of health systems as a whole and wait lists generally arise amid an imbalance between the demand for and the supply of health services. The intergovernmental organization states that wait times for elective (non-urgent) treatment have stalled over the past decade in many countries and started to rise again in some others even before the COVID-19 outbreak. In a 2020 report, OECD flagged that wait times for elective treatments were an issue in 21 out of the 24 countries it surveyed.[4]

02 Ballooning health spending

35%

Of country health spending comes from the pockets of patients

Source: WHO

According to the OECD, health spending is projected to outstrip both expected growth in the overall economy and in government revenues across OECD countries. The organization's most-recent figures from 2022 across member countries showed healthcare spending at 9.2 percent of GDP[5] and the OECD predicts total health expenditure reaching 11.2 percent by 2040.[6] This is just part of the picture. The WHO indicates that while governments provide an average of 51 percent of a country's health spending, more than 35 percent of health spending per country comes from out-of-pocket expenses paid by citizens. The WHO warns that as a consequence, 100 million people will be pushed into extreme poverty each year.[7]

[2] World Health Organization. (2022, October 1). Ageing and health: Key facts.
[3] United Nations. Department of Economic and Social Affairs. (2023). World Social Report 2023: Leaving no one behind in an ageing world. Chapter key messages.
[4] Ibid
[5] OECD. (2023). Health at a Glance 2023: OECD Indicators, OECD Publishing, Paris.
[6] OECD. (2024). Fiscal Sustainability of Health Systems: How to Finance More Resilient Health Systems When Money Is Tight? OECD Publishing, Paris.
[7] World Health Organization. (2019, February 20). Countries are spending more on health, but people are still paying too much out of their own pockets, News release.

03 Workforce shortages

10M

Shortfall of health workers predicted by 2030

Source: WHO

The WHO projects a shortfall of 10 million health workers by 2030 (mostly in low- and lower-middle income countries).[8] There are a finite number of healthcare professionals in the world and current training approaches are lengthy. While recruiting healthcare workers from other jurisdictions may help in one place, it is likely to cause shortages in others. Global research by the Partnership for Health System Sustainability and Resilience found workforce imbalances across almost all countries it studied, an issue that undermines equity of service provision, and disproportionately affects vulnerable and socio-economically deprived populations.[9]

04 Widening health inequities

3X

More unmet medical needs for low-income people

Source: OECD

According to the OECD, despite generally high levels of coverage for core health services, unmet health needs vary significantly according to country and income level, with people in the lowest income group across 26 OECD countries three times more likely to report unmet medical care needs than those in the highest group in 2021.[10]

05 Climate change

US$2-4B

Estimated annual direct damage costs to health

Source: WHO

Climate change impacts human health in many ways, causing illness and death from increasingly frequent extreme-weather events, food-system disruptions and infectious diseases. Around the world, an estimated 3.6 billion people live in areas highly prone to climate change, with vulnerable and disadvantaged groups being disproportionately affected by climate-related health risks.[11] Climate change also has a financial impact. Direct damage costs to health (excluding costs in health-determining sectors such as agriculture and water and sanitation) are estimated to be US$2-4 billion per year by 2030.[12]

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[8] World Health Organization. (2024). Health workforce: Overview.
[9] Partnership for Healthcare System Sustainability and Resilience. (2023). Key findings from country reports: Building sustainable and resilient health systems
[10] OECD. (2023). Health at a Glance 2023: OECD Indicators, OECD Publishing, Paris.
[11] World Health Organization. (2023, October 13). Climate change, Key facts.
[12] Ibid

The need for more-sustainable approaches and ways of working

The case for transformation is solid. Meeting the soaring demand for healthcare with traditional approaches and ways of working is no longer sustainable. It might be easy to sum up the challenges that healthcare systems are facing now and in the future. The key issue, though, is how to deal with them and how to come up with approaches that will help keep systems sustainable and inclusive.

Part of the answer lies in technological advancements, particularly around artificial intelligence (AI) helping to augment human roles with tools that can liberate healthcare professionals from administrative burdens, detect worsening patient conditions earlier, and help target interventions to populations most in need of extra support. However, risk aversion and capacity constraints are slowing healthcare's journey to embrace new tech.

The KPMG global tech report 2024[13] found that healthcare organizations are 6 percentage points more likely than the cross-sector average to see risk aversion slowing their progress, with 62 percent maintaining it impacts their organization's ability to embrace new technologies.

The research revealed that capacity constraints were also an issue for the sector, with healthcare respondents citing this as a top factor making their organizations less confident about investing in new technology — 9 percentage points higher than the cross-industry average.[14]
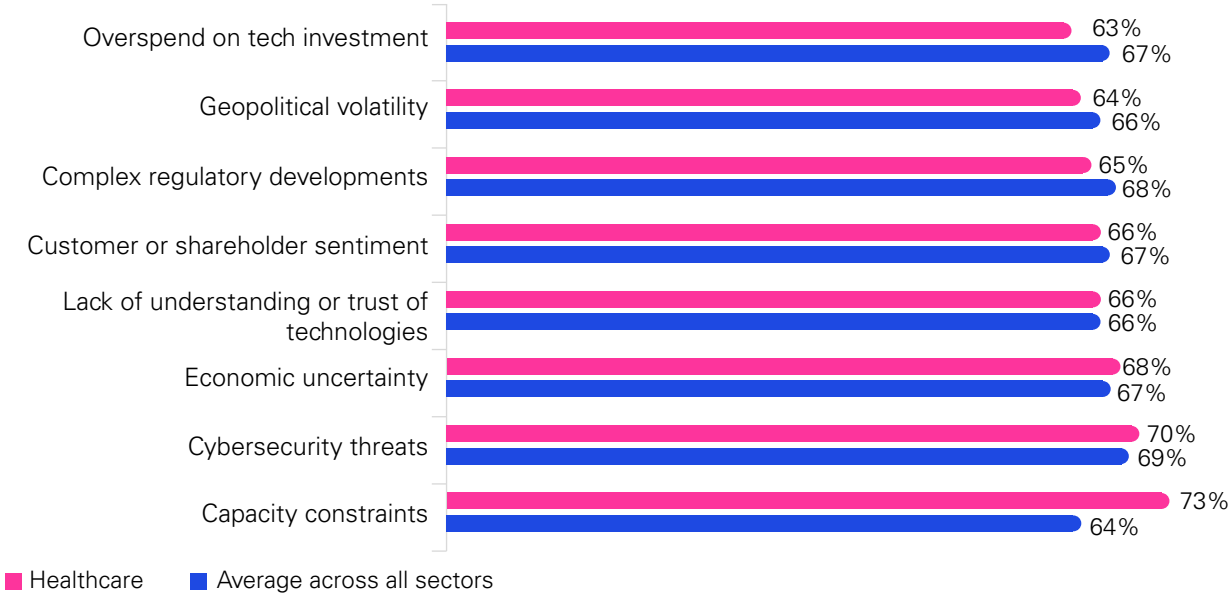
Risk aversion frequently makes senior leadership move more slowly in embracing new technology

Cross-sector average	56%
Healthcare	62%

Source: KPMG global tech report 2024
Q: How often, if at all, do the following situations occur within your business? Frequently - Risk aversion makes senior leadership move more slowly than our competitors in embracing new technology

Factors that have made organizations feel less confident about new technology investments

	Healthcare	Average across all sectors
Overspend on tech investment	63%	67%
Geopolitical volatility	64%	66%
Complex regulatory developments	65%	68%
Customer or shareholder sentiment	66%	67%
Lack of understanding or trust of technologies	66%	66%
Economic uncertainty	68%	67%
Cybersecurity threats	70%	69%
Capacity constraints	73%	64%

■ Healthcare ■ Average across all sectors

Source: KPMG global tech report 2024
Q: To what extent, if at all, have the following factors made your business feel less confident about investing in new technology? To some/great extents

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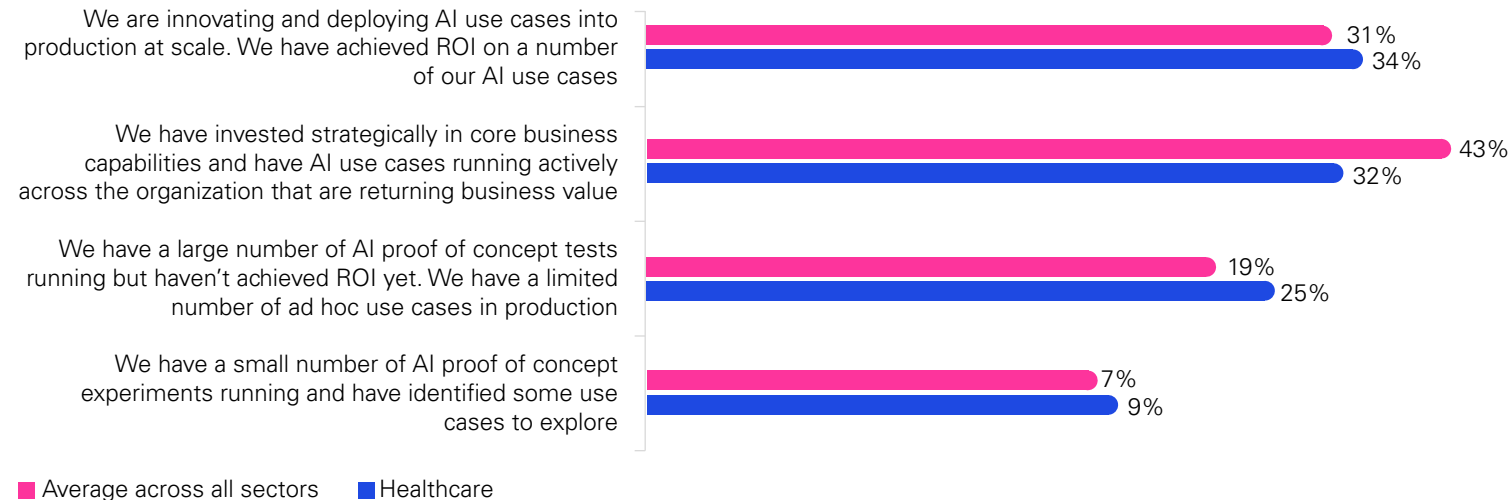13 KPMG International. (2024). Global tech report.
14 Ibid

That reticence to embrace advanced technology is not surprising given the sector's burned-out workforce, heavy regulation, cumbersome legacy systems, fragmented data and other issues. But given technology and AI's vast potential for change — and healthcare's vast landscape of challenges — the industry is well positioned to leap ahead and transform. In line with that, the KPMG global tech report 2024 found that while the healthcare sector is developing and deploying many AI models and launching proof-of-concepts, the potential is not fully reaped as investment levels are not at par with the pace of development. Furthermore, while return on investment (ROI) may have been achieved by healthcare organizations in certain silos, the business value at the enterprise level is not being realized, with a negative 11 percentage-point difference when compared to other sectors surveyed.[15]

In addition to generating a return on investment, and the ethical and responsible deployment of AI, healthcare leaders should understand the complexities of digital labor, the differences between augmentation and automation, and which tasks and roles could benefit from these approaches. A few healthcare organizations in the US and UK are working with KPMG firms to do just that by undertaking assessments of work and tasks that are changing through technology — whether Gen AI or other automation. Through these assessments, individual roles and the work of entire functions is deconstructed and analyzed with clear opportunities based on value, and ROI is identified.

The route forward

The pages that follow delve into the future horizons of healthcare, where we offer predictions on the factors needed to support inclusive and sustainable transformation. We also showcase trailblazer organizations leading the way, showing the rest of the world how data and technology can be leveraged to support healthcare workers and activate communities in supporting health promotion, prevention and delivery of care services.

Current organizational AI adoption maturity level

	Average across all sectors	Healthcare
We are innovating and deploying AI use cases into production at scale. We have achieved ROI on a number of our AI use cases	31%	34%
We have invested strategically in core business capabilities and have AI use cases running actively across the organization that are returning business value	43%	32%
We have a large number of AI proof of concept tests running but haven't achieved ROI yet. We have a limited number of ad hoc use cases in production	19%	25%
We have a small number of AI proof of concept experiments running and have identified some use cases to explore	7%	9%

Source: KPMG global tech report 2024
Q: Which of the following best describe your organization's current maturity level with AI adoption?

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[15] KPMG International. (2024). Global tech report.

Trailblazing the future for healthcare

Predicting five key characteristics for inclusive and sustainable health systems

Imagine a world where healthcare systems are more inclusive and more sustainable, where promoting and maintaining good health is as important as treating the sick. In this world, broad primary health teams — including nurses, pharmacists and other healthcare workers — collaborate hand in hand with community groups to care for people holistically in integrated settings. Here, good care delivery is provided equitably to all, while workforces are happy and productive, empowered by technology rather than frustrated by it.

When looking to healthcare's future horizons, this is what we envisage. Progressing towards this future will require fundamental paradigm shifts across several areas.

At KPMG, we predict five key characteristics for inclusive and sustainable health systems. The predictions that follow are based on trailblazing examples and on KPMG professionals' industry experience.

1 Uplifted and expanded workforces

With a global shortage of healthcare workers, growing demand for healthcare services cannot be met simply by training more doctors and nurses. Some countries are even struggling to train the qualified candidates they have. This is the case in the United States. According to reports by the American Association of Colleges of Nursing (AACN), U.S. nursing schools turned away 65,766 qualified applications from baccalaureate and graduate nursing programs in 2023 — with most nursing schools pointing to faculty shortages as a top reason for this issue.[16] Another report by the AACN identified a total of 1,977 full-time faculty vacancies at 922 nursing schools across the country.[17] When looking to the future, healthcare systems should make better use of their existing workforce and think differently about training and accreditation.

Uplifted and expanded workforces involve:

Delegating tasks — administrative and clinical — to technology: There are myriad applications of artificial intelligence to uplift healthcare workers from administrative tasks and to streamline clinical ones. For example, transcribing patient notes or follow-up letters is an administrative burden and costly when organizations outsource these tasks to transcription agencies. A number of Trusts within the National Health Service in England are using Nuance Dragon Medical One, a conversational AI cloud-based solution hosted on Microsoft Azure, to accurately capture voice-generated content directly into clinical systems. In one six-month period, staff at one Trust using the solution saved about 2,500 hours that previously would have been required to manually type the information.[18] Another Trust is predicting savings of £2.3M (US$3.2M) over five years due to its staff using the system.[19] Inside hospitals in the United States, wearable technology is also being used to track patients' vital signs remotely and integrate this information directly into EMRs, saving nurses time in the areas of charting and documentation.[20] In Israel, AI is being used to recommend personalized mental-health care.

Using generative AI to tackle a mental-health crisis
Sheba Medical Center (Israel)

Result:
Patients diagnosed and initiated on treatment 5X faster

According to the WHO, many countries face shortages in mental-health nurses, psychiatric social workers, psychiatrists, psychologists, counsellors and other paid mental-health workers.[21] In Israel, Sheba Medical Center is seeking to serve more patients with limited psychiatric staff using an advanced generative AI model. The idea for this approach was established by ARC — The Center for Digital Innovation at Sheba Medical Center. Working with KPMG in Israel and Microsoft, the organization has developed an AI-based system that can triage patients, recommend personalized treatment plans and monitor progress. As a result, patients are diagnosed and initiated on treatment five times faster, while benefitting from an evolving treatment plan that is tailored to their changing needs and delivered by a user-friendly interface. The system, called Liv, does not replace a human doctor, but it accelerates diagnosis and treatment initiation, and supports the development of a treatment plan, so that psychiatrists can help more patients in parallel. It is also available around-the-clock, providing extra support to patients when needed. Not only does this enable providers to serve a much larger population of patients, it also significantly reduces the costs of delayed and inefficient care.

Employing micro-credentialed individuals for hyper-specialized tasks: Clinical training, whether to become an allied health professional or a consultant doctor, is lengthy and healthcare workforces therefore cannot be developed quickly. But it is possible to train non-clinical individuals for certain tasks, thereby expanding the capacity of healthcare staff for more challenging and satisfying work. The power of such micro-credentialing was evident during the COVID-19 pandemic, when members of the public trained as vaccinators to deliver the biggest immunization program in history. In Western Australia, Aboriginal health workers are trained for tasks relevant to their communities. This includes performing ultrasounds that can detect rheumatic heart disease in young people — a condition that disproportionately affects Indigenous Australians — and enable early treatment or prevention.

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16 American Association of Colleges of Nursing. (2024 May). Fact Sheet: Nursing Faculty Shortage.

17 Ibid

18 The Health Informatics Service (THIS). (2021, November 1). How voice recognition technology is benefitting NHS staff and patients. Case Study.

19 Microsoft. Nuance Communications, Inc. (2024). Speech recognition helps East Kent streamline clinical documentation.

20 Baker, J., Krajecki, M. (2022, April). Healthcare technology transformation trends in the United States, Healthcare Foresight, KPMG International.

21 World Health Organization. (2022). World mental health report: transforming mental health for all.

2 Hyper-integrated landscapes

Integrated care — where different providers collaborate to offer patients a seamless experience — is a well-established concept. However, in the future state of healthcare, integration will need to evolve further in several critical ways. Leaders should adopt a regional rather than local perspective, enabling workforces to be deployed flexibly across various geographies and settings to meet fluctuating demand, such as unexpected surges or infectious disease outbreaks. Integration should extend beyond the coordination of primary care and hospitals to encompass prevention and broader community engagement.

A hyper-integrated health system:

Addresses the social determinants of health: Social factors such as income, education, early childhood development and food security account for between 30 and 55 percent of health outcomes.[22] Health systems can use social deprivation measures to pinpoint and deliver extra support to the neighborhoods and groups most in need. In New York state, for example, healthcare network Northwell Health partners with a leading grocery technology company, to deliver fresh and nutritious food to food-insecure pregnant women in underserved communities.[23]

Adapts to the social and cultural needs of the communities it serves: Cultural and spiritual factors can also be strong determinants of health and should also be taken into consideration. An excellent example of this in practice is WA Country Health Service (WACHS), which serves many Aboriginal language groups across its rural and remote populations in Western Australia. One important aspect for WACHS is to deliver as much care as possible 'on country,' an Aboriginal term referring to the land to which they belong. For Aboriginal populations, being on country contributes to health and healing. To help deliver care locally, WACHS uses a virtual control center based in Perth, the state capital, to provide specialist support to on-the-ground workers. Midwives in the control center, for example, can guide community health workers on deliveries in remote areas.

Tackling health inequities with telemedicine
WA Country Health Service (Australia)

Western Australia is a vast geographical expanse that is home to many remote communities with diverse needs. Of the 2.8 million people who live in the region, some 550,000 live outside of Perth, and 11 percent of those who live in remote areas identify as Aboriginal. The region grapples with health inequalities on two fronts: People living in rural and remote areas are less healthy than those in metropolitan neighborhoods, and Aboriginal health outcomes and life expectancy are significantly lower than non-Aboriginal people. To improve the quality of healthcare in remote areas, the State government has rolled out 24/7 digital-health support to healthcare teams based in remote areas. The technology connects front-line doctors and nurses in rural and remote areas with specialty clinicians via video conferencing and real-time data exchange. Doctors and nurses spanning specialties such as midwifery, obstetrics, palliative care, emergency medicine and psychiatry, as well as specialty pharmacists, offer expert clinical advice for patients being cared for by rural and remote medical teams. An in-patient telehealth service provides virtual ward rounds to patients admitted to local hospitals. This service has enabled 74 percent of emergency patients, 87 percent of in-patients and 84 percent of mental health inpatients to avoid transfer to a larger center.[24] Real-time monitoring also means that if a patient requires transferring to a regional or metropolitan hospital, it is arranged in a safe, timely and efficient manner.

Result:
74% fewer emergency patients transferred to larger centers

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[22] World Health Organization. (2024). Social determinants of health, Overview.
[23] Libassi, M. (2024, July 17). Northwell, Instacart partner to expand access to nutritious food for patients and staff. News center.
[24] Government of Western Australia: WA Country Health Service. (2023, August 28). Snapshot: WACHS Command Centre.

Links locally delivered care to national or regional centers of excellence: The time and expense of traveling long distances is often a healthcare barrier for those who live in rural or remote communities. In many jurisdictions with these geographic challenges, health systems have deployed telehealth and virtual hospital solutions to improve access to care. These approaches make specialists available remotely to local healthcare workers, inverting the traditional paradigm where patients must visit secondary or tertiary centers for specialist care.

A study found the estimated total financial costs saved by Canadians via virtual care in 2021 was CAD$5.9B (US$4.3B), including CAD$365M (US$266M) in costs avoided by rural and remote patients.[25] The study also found that a virtual approach delivered environmental benefits. The total estimated carbon-emission savings associated with virtual care in Canada was roughly 330 thousand metric tons of CO2eq (the equivalent of taking 72,000 passenger vehicles off the road for a year).[26]

Uses AI for disease surveillance: The COVID-19 pandemic underscored the importance of disease surveillance systems and there is great potential for AI to enhance their predictive power. Australia-based EPIWATCH is using this technology to provide a crucial early-warning system to public health officials. EPIWATCH uses three AI systems, Natural Language Processing (NLP), Bidirectional Encoder Representations from Transformers (BERT) and large language models (LLMs) to analyze vast amounts of open-source intelligence data from news reports, social media and other sources in 46 languages in order to identify emerging infectious disease outbreak signals.[27] AI models can also be used to combine multiple data sources to monitor ongoing outbreaks more accurately.[28] For example, in the later stages of the pandemic, KPMG in India supported India's Ministry of Health and Family Welfare in developing a COVID-19 emergency medical response system. This system leveraged information and communications technology applications to manage and monitor COVID cases and various priority response areas at the central and state level.[29]

The benefits of virtual care:

- Costs avoided by rural and remote patients
- Significant carbon emission savings

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[25] Canada Health Infoway. (2022 July 7). Benefits evaluation. Environmental and financial benefits of virtual care in Canada.

[26] Ibid

[27] EPIWATCH. (2024). Website and brochure information.

[28] Sundermann, A. J., Miller, J. K., Marsh, J. W., Saul, M. I., Shutt, K. A., Pacey, M., … Harrison, L. H. (2019). Automated data mining of the electronic health record for investigation of healthcare-associated outbreaks. *Infection Control & Hospital Epidemiology*, 40(3), 314–319.

[29] Chen, W., Sá, R.C., Bai, Y., Napel, S., Gevaert, O., Lauderdale, D.S., & Giger, M.E.L. (2023). Machine learning with multimodal data for COVID-19. Helyion: Cell Press, 9 (7), e17934.

3 Communities are empowered to care for their most vulnerable

Technology will likely underpin the future state of healthcare, but it is not the whole answer. Healthcare is fundamentally about humans taking care of one another. An inclusive and sustainable health system is one where people, particularly vulnerable people, primarily receive care from people they trust, in their communities.

A health system which activates its communities:

Supports on-the-ground healthcare workers and patients: Telemedicine is often thought of as a way to directly link patients up with their providers. But it also empowers community-based healthcare workers to deliver a higher level of care to people by giving them access to specialists. This is particularly valuable for vulnerable populations who may especially benefit from in-person contact or cannot access telemedicine because they lack a computer or smartphone. In the US, Northwell Health has partnerships with local school districts through which clinical guidance and triage support is provided to school clinicians, and education and support to school staff and parents. These partnerships have significantly decreased the participating school districts referring their students to emergency rooms for mental health related concerns.[30]

Remote patient monitoring and digital therapies can also help patients in underserved communities overcome barriers to care. In the US, Federally Qualified Health Centers and Rural Health Centers are the primary organizations bringing care to these communities. As of 1 January 2024, the US Centers for Medicare and Medicaid Services now allows these organizations to bill for remote patient monitoring[31] and remote therapeutic monitoring — an important step in enhancing care for underserved communities.

Shares data regionally or nationally: As populations age, the complexity of care and where it is delivered changes from homes to primary care clinics, to aged care facilities and to hospitals. Historically, in many countries, as patients have moved between these settings, the data collected and generated by clinicians has not followed the patients. For care to be delivered sustainably in communities, local healthcare workers need a complete picture of each patient's health. While early adopter Estonia has had digital-health records in place for many years, other countries are now moving towards this approach. For example, Italy's government is working toward digital interoperability and single, lifelong patient digital identities through the expanded use of electronic health records (EHRs). KPMG in Italy has worked with healthcare leaders to roll out EHRs at the regional and national levels that aim to empower patients, and support both healthcare service planning and population health research and management.

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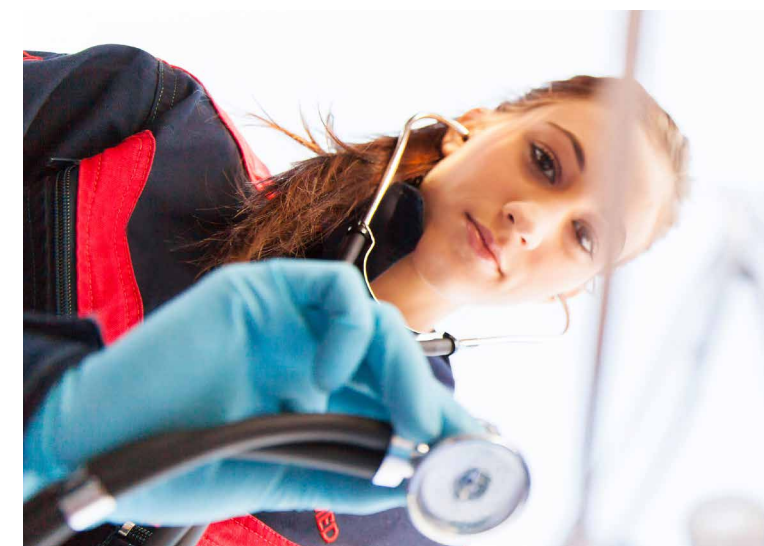
30 Northwell Health statistic.
31 Centers for Medicare & Medicaid Services. (2023, November 2). Press Releases. Calendar Year (CY) 2024 Medicare Physician Fee Schedule Final Rule.

Takes a 'for the community, by the community' approach: For minority populations whose trust in mainstream institutions is low, it is important that the management and delivery of healthcare is handled by trusted community leaders rather than outsiders. Community leaders are often best positioned to understand the specific health needs of their population.

Putting healthcare in the hands of communities
Aboriginal Community Controlled Health Organisations (Australia)

Result:
15% decline in avoidable mortality for Indigenous Australians

Nearly one million people living in Australia — about 3.8 percent of the total population — identify as being of Aboriginal or Torres Strait Islander origin.[32] People in these groups experience significantly worse health outcomes than other Australians, with life expectancies about eight to nine years lower than for non-indigenous people.[33] Mainstream healthcare fails to meet the needs of this population, with Aboriginal and Torres Strait Islander people routinely experiencing structural and systemic racism. But that gap is closing, in large part thanks to a growing network of Aboriginal Community Controlled Health Organisations. These organizations put Aboriginal healthcare into the hands of the local community. They are initiated and operated by Aboriginal communities and overseen by locally elected boards of management. They deliver holistic, thorough and culturally appropriate healthcare services tailored to the communities they serve. The first such service was founded in 1971 and now some 144 organizations deliver care to almost 410,000 Aboriginal and Torres Strait Islander peoples. Aboriginal Community Controlled Health Organisations have contributed to a 15-percent decline in avoidable mortality for Indigenous Australians from 2006 to 2019[34] and were found to have a preventative effect on hospitalizations.[35]

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[32] Australian Bureau of Statistics. (August 31, 2023). Estimates of Aboriginal and Torres Strait Islander Australians.
[33] Australian Bureau of Statistics. (2020-2022). Aboriginal and Torres Strait Islander life expectancy. ABS.
[34] Australian Institute of Health and Welfare & National Indigenous Australians Agency. (2022). Measure 1.24 Avoidable and preventable deaths, Aboriginal and Torres Strait Islander Health Performance Framework website.
[35] Ibid

4 Exceptionally stronger primary care

At the heart of thriving future state health systems are highly functional primary-care systems. Excellent primary care has the potential to keep people healthier and out of hospitals.

Primary care providers of the future:

Operate at scale: In many jurisdictions, primary care has historically operated as a cottage industry, centered on individual or small groups of individual family doctor practices. But operating at scale delivers significant benefits. For large primary-care networks, infrastructure, technology and workforce investments can be underwritten by healthcare systems, and back-office functions can be consolidated and operated more efficiently. For the public, these networks can offer a greater range of services, such as minor injury units or out-of-hours services and improved access, because patient demand can be distributed over a wider network.

Have a multidisciplinary offering: In many places, primary care acts as a gatekeeper to either send patients home or escalate care to secondary or tertiary settings. Primary-care systems should deliver definitive care for a wider range of indications, utilizing broader teams that include specialist nurses, pharmacists and other allied health professionals. Delegating aspects of primary care to wider teams creates more capacity for family doctors to use their insights and experiences to diagnose more complex or rare conditions.

Are supported by advanced technology: Data and analytics tools can identify patients at high risk for health complications or worsening conditions, prompting healthcare workers to provide care proactively and increasing the chances of better outcomes. In the United Kingdom, researchers at the Leeds University School of Medicine and Leeds Teaching Hospitals NHS Trust have trained a machine learning-based AI tool to predict when people are at high risk of developing heart failure by identifying early warning signs in patient's GP health records. This tool is expected to be used by GPs in the next few years.[36] In Israel, AI assisted predictive healthcare is already assisting primary care providers.

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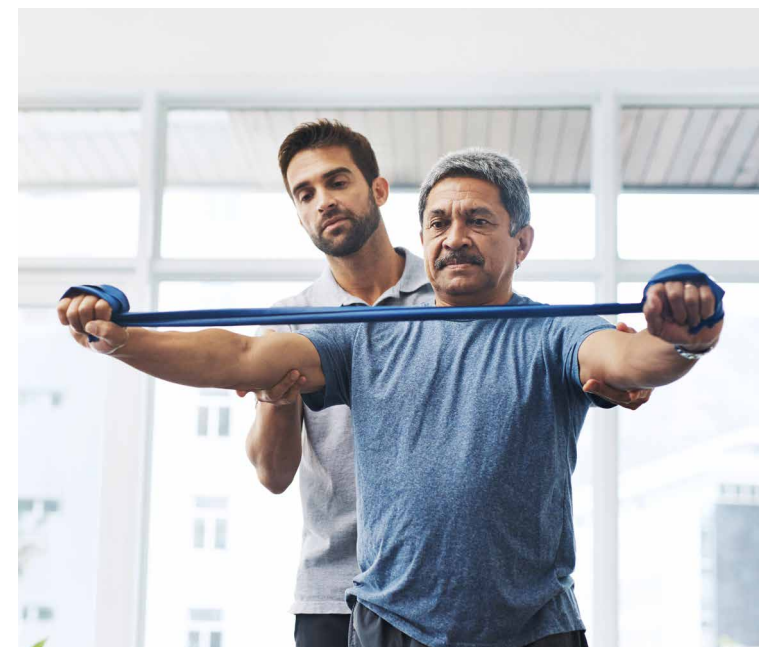
[36] University of Leeds. (2024, June 7). Using AI to detect heart failure. Health news.

Harnessing big data and AI for proactive-preventive care

Clalit Health Services (Israel)

Result:
Over 100 times more efficient at targeting hepatitis C programs than traditional screening

Demands on physicians are rising as populations age and as medical decision-making becomes exponentially more complex. As a result, physicians are so busy providing reactive care that they are unable to provide proactive-preventative care and an increasing proportion of patients are receiving suboptimal care. Clalit Health Services (CHS), Israel's largest healthcare organization, developed C-Pi, an advanced AI-based platform drawing on the vast quantities of electronic healthcare data available in CHS, to help its ~2,500 primary care physicians meet these demands.

C-Pi's AI-prediction engine helps physicians prioritize who to target proactively. "The C-Pi platform allows Clalit to harness AI to serve as an 'always-on' physician assistant that can sift through the entire EHR data repository of every patient and provide multiple domain expert-level recommendations, including drug specific recommendations, elevating quality and safety of care," says Prof. Ran Balicer, Clalit's Chief Innovation Officer and Deputy-DG.

The physician's patients are presented according to predicted risk, both for specific clinical conditions and, holistically, by combining the weighted risk across all conditions. C-Pi's decision-support engine, based on state-of-the-art automated clinical pathways, scours five million electronic medical records every night to provide detailed, highly personalized follow-up and treatment recommendations promoting ideal evidence-based management across a range of clinical conditions such as diabetes, osteoporosis and hepatitis C. The platform can, for example, pinpoint individuals at high risk of carrying the hepatitis C virus, which is commonly undiagnosed and untreated, leading to liver damage and liver cancer. C-Pi's Hepatitis predictor is more than 100 times more efficient than traditional screening programs.[37] C-Pi has been developed as a generic platform that can present the patient-related predictions and insights across all relevant clinical conditions, and agnostic to the data type from which the insight originated (e.g., structured, imagine, signal or molecular).

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[37] Dagan, N., Magen, O., Leshchinsky, M., Makov-Assif, M., Lipsitch, M., Reis, B.Y., Yaron, S., Netzer, D., & Balicer, R.D. (2024). Prospective Evaluation of machine learning for public health Screening: Identifying unknown hepatitis C carriers. NEJM AI, 1(2).

5 Hospitals as high-tech knowledge hubs

With an emphasis on prevention, and most care taking place in the community in future state health systems, we predict that hospitals of the future will be hubs of high technology — featuring specialized medical and surgical teams who support emergency care, complex treatments or procedures. These hubs will provide specialized knowledge to guide clinicians in tertiary facilities and to community health workers. To support sharing of clinical leading practices, these hubs will collaborate globally.

Future state hospitals will:

Be relentlessly efficient: Given the dynamic nature of hospital activity, balancing elective procedures with unpredictable emergency admissions creates scheduling challenges. Suboptimal scheduling leads to the under-utilization of valuable resources such as operating theaters, medical equipment and highly specialized staff. Machine learning will help to address these challenges as algorithms excel at crunching large quantities of data in real time to optimize efficiency. AI isn't the only answer: innovative human-designed approaches can also improve workflow and staffing efficiency.

Tackling surgery waiting lists
Guy's and St Thomas' NHS Foundation Trust (England)

In central London, Guy's and St Thomas' NHS Foundation Trust faced significant challenges post-pandemic in managing high demand for elective surgeries — including long wait lists, workforce shortages and financial limitations. To solve the backlog, Trust staff created an innovative approach to efficiently and safely maximize the number of patients treated. The high intensity theater (HIT) list model minimizes surgeon down-time, enabling them to move efficiently from patient to patient without waiting for patients to be anesthetized and theaters to be set up. The HIT lists approach focuses on one type of procedure at a time. This approach requires careful planning by a multidisciplinary team to select suitable cases, patients and team members, and to plan the equipment and ordering of the lists. For each surgical marathon, the number of anesthesia, surgical and theater staff are increased to minimize turnaround time between cases, making more time available for the surgeon to operate. Two theaters and three teams are used, and the surgeon goes between cases without having to wait for the patient. This approach has dramatically improved productivity. or example, during a one-day HIT list, 17 patients were treated for hernia repairs instead of five.[38] In another instance, three months' worth of breast cancer patients were operated on in five days.[39] To date, the Trust has run 23 HIT lists, treating 410 patients across nine different surgical specialties.[40] Many other Trusts in the National Health Service have adopted this model and are now running their own HIT list programs.
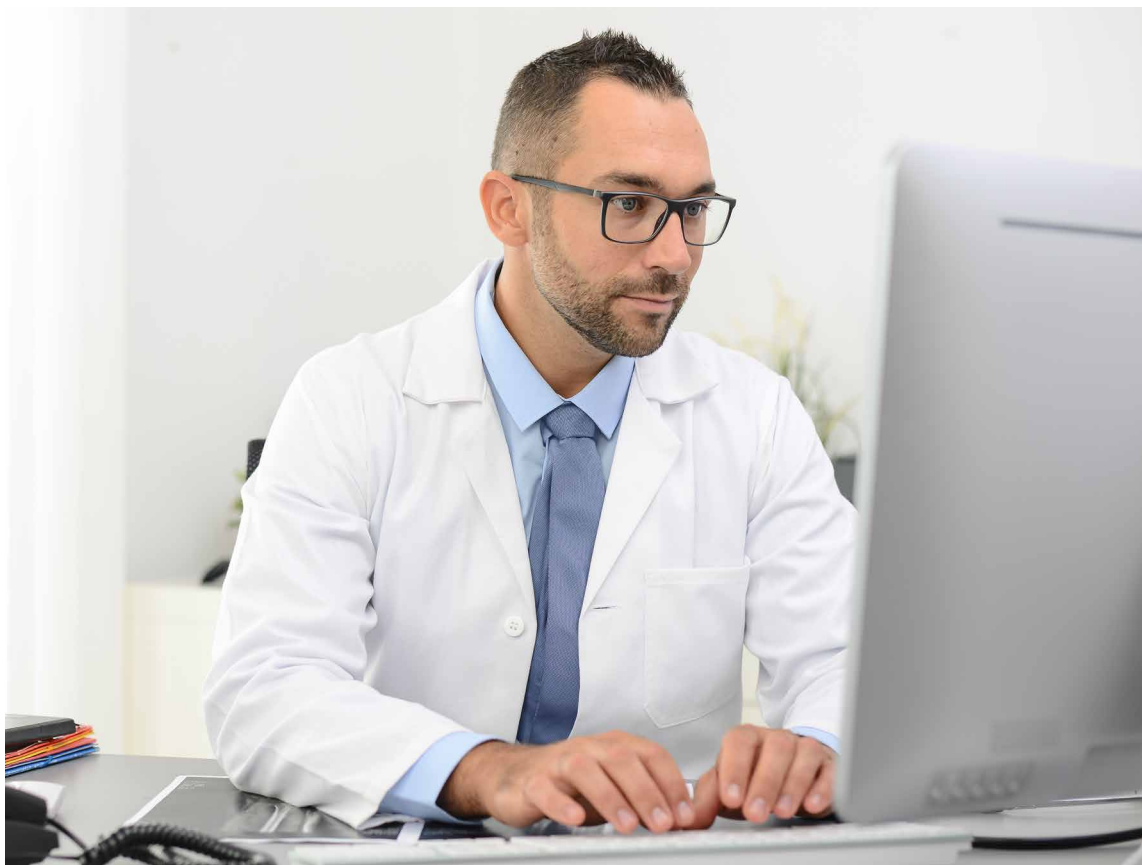
Result:
3 months' worth of breast cancer patients operated on in five days

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[38] Guy's and St Thomas' NHS Foundation Trust. (2022, May 3). NHS staff find innovative way to tackle surgery waiting lists. Web article.
[39] Guy's and St Thomas' NHS Foundation Trust. (2023, August 3). Doctors cut waiting list for breast cancer surgery patients. Web article.
[40] Ibid

Reducing administrative burden with AI

University Medical Center Groningen and Elisabeth-TweeSteden Ziekenhuis (Netherlands)

Result:
Reducing production of patient summaries from seven minutes to 16 seconds

Distilling information from patient electronic health records is a problem for clinicians worldwide given the sheer amount of information contained in these records. To cut down on clinician administrative burden, two hospitals in The Netherlands, University Medical Center Groningen and Elisabeth-TweeSteden Ziekenhuis, recently became the first in the world to use generative AI-powered patient summaries in a leading EHR system. The objective of this project using Large Language Models (LLMs) was to speed up outpatient visit preparation by distilling electronic health record information into shorter summaries, with references to where specific details were documented in each patient's chart. This project was conducted with Dutch language records. Recently, the hospitals conducted a validation study to compare the quality and efficiency of summaries produced by physicians and the LLM. In total, 400 summaries were benchmarked on criteria such as completeness, correctness, conciseness, subjective preference and trust. When it came to mean writing times, LLM was significantly faster, producing summaries in just under 16 seconds — compared to seven minutes by physicians. In terms of quality — completeness, correctness and overall evaluation scores — the differences between LLM — generated summaries and physician-written ones were not statistically significant. Trust levels for both types of summaries were comparable — physician-written summaries scored 77 percent versus 81 percent for those created with LLM.[41] These findings reinforce that LLMs can be effectively integrated into electronic health records in many languages to produce medical summaries, and signify that they can be trusted for use in clinical decision-making.

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41 Schoonbeek, R., Workum, J., Schuit, S.C.E., Doornberg, J., Van der Laan, T.P., and Bootsma-Robroeks, C. M.H.H.T.Completeness, Correctness and Conciseness of Physician-Written Versus Large Language Model Generated Patient Summaries Integrated in Electronic Health Records.

Provide care for patients remotely when possible: Prolonged hospital stays have been shown to be harmful for patients due to factors such as increased risk of hospital-acquired infection, negative impacts on mental health and reduced mobility.[42] Many trailblazing health systems are using virtual wards to address this issue. They use a combination of remote monitoring, telehealth and at-home visits by a team of staff to provide hospital care to patients at home.[43]

Relieving pressure on hospitals with virtual wards
Ministry of Health Singapore

In recent years, Singapore has experienced an increase in patient admissions, causing a severe ward bed shortage, long wait times and clogged emergency departments. To relieve pressure on public hospitals, Singapore's Ministry of Health has introduced a virtual ward approach. The Mobile Inpatient Care @ Home (MIC@Home) is an alternative care-delivery model that offers patients the option of being hospitalized in their own homes with 24/7 access to a team of doctors, nurses, pharmacists, therapists and other healthcare professionals. To use this service, patients must be clinically stable, able to care for themselves independently or have sufficient caregiving support, and have an internet connection. Patients receive holistic clinical care through teleconsultations and/or home visits, and receive IV medications and blood tests. By the end of 2023, 2,000 patients benefitted from a pilot implementation of the service, saving approximately 9,000 hospital bed days[44] and generating a 10 percent savings. In April 2024, it was announced that MIC@Home would be offered as part of regular public-hospital services and have a 300-virtual bed capacity.[45]

Result:
9,000 hospital bed days saved

Tap into leading expertise via a global network: Globally networked hospitals can exchange expertise for complicated cases or rare conditions. The Mayo Clinic in the United States, for instance, offers e-consultations in which its experts provide second opinions for doctors in other hospitals. It also invites multidisciplinary clinicians from other hospitals to participate in e-boards to discuss complex case management.[46]

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[42] Rojas-García, A., Turner, S., Pizzo, E., Hudson, E., Thomas, J., Raine, R. (2018, February). Impact and experiences of delayed discharge: A mixed-studies systematic review. Health Expectations, 21 (1), 41-56.
[43] Government of Singapore. (2024, March 6). Delivering Care Beyond Hospitals. Ministry of Health News Highlights.
[44] Ibid
[45] Ibid
[46] Mayo Clinic. (2024). Solutions and Services.

How future state health system transformation may look for different ecosystem players

As we mentioned previously, moving towards future state health systems will require fundamental paradigm shifts across a few areas and we also predict evolved roles and remits for health ecosystem players.

The future for payers

Rich patient-linked datasets that closely track outcomes make it possible to enact payment models that incentivize payors to keep populations healthy. As a result, more funding will be directed to prevention and population health programs because the long-term benefits of averted hospitalizations and better overall population health flows back to payors.

The future for providers

Artificial intelligence will take care of many mundane tasks, freeing up healthcare workers to spend more time with patients and in some cases transforming whole roles. People no longer equate primary care with the family doctor or GP. Most primary care is carried out by nurse practitioners, midwives, pharmacists and other allied health professionals. People outside of the traditional healthcare workforce receive micro credentials to deliver hyper-specialized care such as vaccinations or mental health first aid. Family doctors, meanwhile, gain more time to diagnose complex conditions and care for patients with more-challenging needs.

For hospitals, physical infrastructure only tells half the story. Patients recovering from surgery or rehabilitating from illnesses are cared for in virtual wards, meaning they are monitored remotely from their homes and can be re-admitted if needed. Doctors perform virtual ward rounds and community healthcare teams conduct in-person at home visits.

The future for governments

Governments have a greater capacity to plan for the long-term and hold the levers required to infuse health into all policy areas. Analysis of rich datasets that combine social, economic and health indicators enable targeted population health measures to address the social determinants of health. The same data analytics capabilities that help to target policies also enable governments to measure their effects. A healthier population is a more economically active population, so the benefits also flow back into public purses through taxation and lower use of social benefits.

Key takeaways

To make the move towards the future state of healthcare, systems should undergo paradigm shifts to meet the growing demands they face. This will involve:

- Moving integration upstream to tackle social determinants of health issues as a first step to addressing health inequities. Integration needs to go further than co-ordination between primary care and hospitals and must enable specialist hospitals to empower local centers to deliver higher-quality care across geographies.

- Gaining trust from minority groups by devolving decision-making to local communities while empowering communities to deliver the best care possible through connections with specialists.

- Building strong primary care networks that avert hospital admissions with preventive and proactive care; Advanced technology and AI playing a role in targeting patients at highest risk of serious health issues and in recommending optimal treatment plans; Multidisciplinary teams giving primary care physicians more time to care for people with more complex needs. Primary care that operates at scale can more effectively achieve these goals.

- Using advanced technology to unleash greater workforce productivity by delegating administrative and routine tasks and even some clinical work to AI tools, and micro-credentialing to harness the potential of non-medically trained workers to expand workforce capacity.

- Shifting the focus of hospitals towards emergency care and complex treatments and procedures, underpinning this with high technology, specialized medical and surgical teams, remote care, support of local primary care or community settings.

Healthcare transformers

Examining key enablers of lasting and impactful change through healthcare leader interviews

Our trailblazing examples demonstrate innovative approaches to some of healthcare's thorniest issues. But healthcare transformation, whether for a particular pain point or for the whole system, is always challenging. For this report we have looked at five places where large-scale change is happening in health systems. Across these examples we examine how leaders have navigated major changes such as structural overhauls, digitalization, workplace culture shifts, collaborating with community organizations and embedding health in all policies. The stories we present address both the work involved in system transformation and how it is being done.

"Creating a miracle" with people, processes, and technology
Nova Scotia Health
Canada

Scaling up the use of digital care pathways
Digital Health Village, Helsinki University Hospital
Finland

Having a clear transformation vision
Saudi Arabia

Activating communities to address health inequities
Northwell Health
United States

Rolling out transformation on a massive scale
Ministry of Health and Family Welfare
India

"Creating a miracle" with people, processes and technology

Nova Scotia Health, Canada

Transformation characteristic:

- Uplifted and expanded workforces

Results:

- More than 282,000 annual hours of administrative tasks removed
- 74,000 appointments were created outside of doctors' offices, increasing accessibility of care

Many health systems are still finding their footing following the shock of the COVID-19 pandemic. The numbers tell a different story in the Canadian maritime province of Nova Scotia, where the health system is performing thousands more surgeries a year than in 2019-20. More than 282,000 annual hours of administrative tasks have been removed from the care system since 2022. There have been net increases of family physicians, nurse practitioners and registered nurses of 106 percent, 187 percent and 165 percent, respectively, since 2020-2021.[47] Karen Oldfield, interim president and chief executive of Nova Scotia Health, describes the work done in the last three years by the organization's senior leaders as "creating a miracle." She shared her insights on the Nova Scotia approach and the factors that enabled them to commit to and execute such a bold transformation.

A new government swept into office in 2021 on a promise to transform a healthcare system stretched and demoralized from years of under-investment, and Oldfield was appointed to lead that transformation. "I was tasked personally to do this job and I'm going to deliver," she says.

The five-year transformation plan, called Action for Health, has the double objective of providing excellent care to the population and increasing support and respect for healthcare workers by bringing together the partner organizations in Nova Scotia's healthcare system to have a singular focus.

It has required wide-ranging change along many tracks — spanning healthcare worker recruitment, raising the standard of care and building accountability at all levels. Oldfield boils all these changes down into three main categories: *people, process and technology.*

Net increases of healthcare professionals in Nova Scotia

	Family physicians	Nurse practitioners	Registered nurses
2020–2021	16	4	70
2021–2024	52	123	692
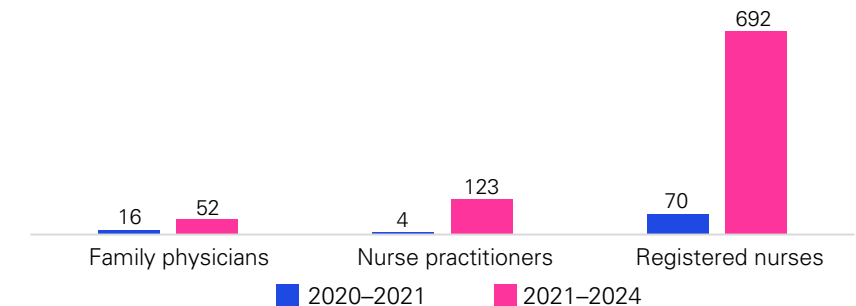
Source: KPMG analysis of Advancing Six Core Solutions for Healthcare, Solution One: Become a Magnet for Health Providers ongoingresults dashboard based on metrics as of May 2024.

Health system partners in Nova Scotia

- Department of Health and Wellness
- Department of Seniors and Long-term Care
- Emergency Health Services
- IWK Health
- Nova Scotia Health
- Tajikeimik

Source: Nova Scotla Health

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47 Province of Nova Scotia. (2024 May). Advancing Six Core Solutions for Healthcare, Solution One: Become a Magnet for Health Providers ongoing results dashboard, data as of May 2024.

People

The first step in executing the transformation was to assemble a "coalition of the willing," says Oldfield. For her, that has meant hiring exceptional people into top roles, and motivating existing leaders with the message that they are part of an important change. "Having the right people on the bus makes all the difference in the world," she says.

One challenge, she says, was amalgamating cultures from parts of the health authority that, though united under the banner of Nova Scotia Health, had behaved as disparate operations amid a history of multiple health authorities within the province. Oldfield says it was key to align leaders from across Nova Scotia to the goals of the health system as a whole.

Oldfield, who has lived and worked as a business leader in Nova Scotia her whole career, says strong personal networks are also crucial to getting things done. Her relationships helped win approval for a much-needed investment in an electronic medical record system. Planning for the new clinical information system is now well underway and is scheduled to begin its go-live roll-out in Summer 2025.

Process

With the right people in place, Oldfield embedded a culture of "operational excellence" designed to empower leaders to make strategic decisions. One key move, she says, is to gather leaders regularly for a strategy deployment review, which includes discussion of seven priority initiatives such as surgical waiting lists and human resources. Leaders from the respective health system organizations discuss these on rotation, meaning that progress on each priority area is reviewed every four weeks. Oldfield says it is essential that leaders in healthcare think strategically.

> **In healthcare we spend all of our time on the urgent and not the important. The important is what is required for tomorrow, for next year, for the year after."**

Karen Oldfield
Interim President and Chief Executive,
Nova Scotia Health

That culture of disciplined, focused decision-making has trickled down through Nova Scotia Health and the organization is reaping the benefits. One example: a laboratory manager told Oldfield that holding a daily huddle with other mid-level managers in her department has saved 20 hours of work a week.

The province has also enacted legislation to help remove barriers to transformation. For instance, nurse practitioners are now authorized to admit and discharge patients from hospital, a role that once relied on over-stretched physicians, and more registered nurses are now authorized to prescribe medicines. In 2023, the province passed the Patient Access to Care Act that includes measures to reduce paperwork, allowing healthcare professionals to focus more on patient care and support healthcare recruitment and retention efforts.

Technology

Gathering and analyzing data is also aiding effective decision-making. Nova Scotia Health's Care Coordination Centre (C3), a first of its kind system in Canada, tracks in real-time several key performance indicators such as emergency room statistics, discharge numbers and available hospital beds. Pulling this data together into a single dashboard helps decision-makers spot and solve issues. Oldfield says that having data so readily available has also proven helpful in collaborating with other areas of government, such as senior and long-term care, where the approaches may involve placing individuals in non-hospital care.

Digital solutions have expanded the capacity of the health system even further. Nova Scotia Health has launched an app called Your Health NS, which is designed to be a first port of call for primary healthcare. Through a chat function that is mainly operated by chatbots but is also staffed by people, users are directed along a care pathway to the most appropriate provider based on their symptoms. This includes virtual care visits with a family doctor or nurse practitioner or speaking with a pharmacist. In April 2024, some 74,000 appointments were created outside of traditional doctors' offices in this way. That capacity, says Oldfield, simply did not exist before the transformation program. Through this increased access, the province is on a path to universal primary care access with geographically based health homes and neighborhoods for all Nova Scotians.

KPMG in Canada has supported Nova Scotia Health in a number of ways including helping to design a transformation roadmap to guide the province in their journey, activating a Health Transformation Office that serves as the engine for the transformation by setting the pace, tracking progress, and facilitating decision-making. The firm has also helped the organization to deploy sprint teams to accelerate implementation and improvement efforts.

Scaling up the use of digital care pathways

Digital Health Village, Helsinki University Hospital, Finland

Transformation characteristics:

- Hyper-integrated landscapes
- Community empowerment
- Hospitals as high-tech knowledge hubs

Results:

- 430 digital care pathways developed and implemented in seven years
- 69 percent of citizens report improved quality of life

The world is increasingly digital and healthcare is no different. But it's hard to find a health system more digitized than in Finland. At Helsinki University Hospital, 80 percent of patients opt to use different digital services. Digital care pathways have been developed as part of now available to people across Finland. These pathways are designed not to replace — but to enhance — traditional care pathways with digital tools such as guided self-care, remote monitoring and automated reminders. Sirpa Arvonen, director of eHealth services at Helsinki University Hospital, says the initiative has been "more successful than we dared to estimate and the cost per digital care pathway is cheaper than we predicted." At the heart of this success was an approach that empowered healthcare professionals to design the digital care pathways themselves. Sirpa explores how this approach was executed.

At the heart of this success was an approach that empowered healthcare professionals to design the digital care pathways themselves. Sirpa explores how this approach was executed.

Built with scale in mind

The Digital Health Village was built in such a way that healthcare professionals could take ownership of the design of the digital health pathways relevant to their specialty areas. That meant that the Digital Health Village could be rapidly scaled up as healthcare professionals worked in parallel on their own pathways. As a result, some 430 different digital care pathways that span a wide range of diagnoses and treatments were produced in seven years. "A strength of Health Village has been its network-like nature and the facilitation of the construction of professional collaboration," says Ms. Arvonen.

She credits "well-done service architecture work" for enabling developers to create a template for digital health pathways that could be easily customized by healthcare professionals for various patient groups. Developers identified a set of core processes common to all care pathways which formed the foundation for the digital health pathways. They also developed a micro-service architecture that could be built on top of that foundation in a modular fashion, depending on the design of the specific treatment pathway. To empower healthcare professionals to design digital service pathways, Ms. Arvonen's team produced training, a process model and instructions for designing patient group-specific digital services.

The scale of the Digital Health Village

Services for the public
- 32 patient group hubs that include vast libraries of plain language health and service information
- 300+ digital care pathways spanning treatment, self-care, rehabilitation and other phases
- The My Path service channel that allows people to securely communicate with healthcare providers, treatment facilities and provides support for self-care

Services for professionals
- The Health Village PRO service for social welfare and healthcare sector professionals, consisting of virtual hubs, online training courses and digital service tools, support for operational and functional change

Source: Statistics sourced from Helsinki University Hospital (HUS)

Human-centered design

Developers at Helsinki University Hospital sought the views of healthcare professionals and patients that use the system throughout the design process. They continue to collect customer feedback, which influences iterative updates to the service. As a result, the system serves up benefits that matter to both groups.

For healthcare professionals, the pathways allocate appointments in a way that optimizes the use of working time. For example, patients can see care instructions in advance of appointments, saving time in clinics. Such efficiencies have saved healthcare professionals on average 25 minutes per day for patient work, opening up time for one extra appointment per professional per day.[48]

For patients, the pathways offer flexibility in how they receive care. They can review instructions at their own convenience, and those living in the country's remote communities can save on travel costs and minimize work absences by conducting some consultations online. The Digital Health Village also makes it possible for a close family member to act on behalf of a patient in digital services, which means that less technologically savvy people can still enjoy the benefits of the digital pathway. In a survey, 69 percent of respondents said the digital pathways had improved their quality of life.[49]

Clinically rigorous

Healthcare professionals' leading role in designing digital care pathways ensures their trust and confidence in them. Each digital care pathway is planned, piloted, evaluated and monitored based on research. "As the facts, research and tools for information management have increased, professionals' trust in digital services has grown," says Ms. Arvonen.

> **"Digital care pathways have increased patients' commitment to their own care and have made the importance of self-care and self-monitoring concrete"**
>
> **Sirpa Arvonen**
> Director of eHealth services
> Helsinki University Hospital

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[48] Digital Village. (2024 January 9). News. Health Village service benefits estimated at hundreds of millions of euros.
[49] Ibid

Rolling out transformation on a massive scale

Ministry of Health and Family Welfare, India

Transformation characteristics:

- Stronger primary care
- Community empowerment

Results:

- 350M people enrolled in National Health Insurance program
- Unified network of 150,000 health and wellbeing centers created

India's Ayushman Bharat PM-JAY, launched in 2018, aims to improve the availability of and access to quality healthcare for its population. Its strategy involves two key planks. One is an ambitious expansion of primary care provision through a government-funded network of *Ayushman Arogya Mandir,* erstwhile known as health and wellness centers. The other is a national health insurance program for low-income Indians that covers up to US$6,000 annually for secondary and tertiary care at 30,533 hospitals that have so far joined the program. Around 350 million people have enrolled in the insurance program, with a further 200 million eligible.[50] As a result of these parallel initiatives, India has vastly expanded access to healthcare for its poorest in just a few years. Dr. Manohar Agnani, a former additional secretary with India's Ministry of Health and Family Welfare, describes the reforms as a "landmark step" for the country.

Primary care at the heart

India's National Health Policy has placed a strong emphasis on primary care. A key aspect of the reforms was to transform a patchwork of primary health clinics and sub-health centers across the country into a unified network of 150,000 Ayushman Arogya Mandirs (primary level healthcare facilities) under the Ayushman Bharat scheme. Where service provision historically varied from clinic to clinic, the government aims for each center to offer a broad range of primary health services, including maternal and child health, reproductive health, palliative care and mental health.

Dr Agnani, who was one of the pioneers in leading the work to establish the Ayushman Arogya Mandirs, says expanding the provision of primary care was central to realizing the vision of the National Health Policy. "If you make comprehensive primary health a reality, then most of the things are happening at that level," says Dr. Agnani. "What's left is making linkages with the private or public sector who are providing secondary and tertiary care."

Top-down and bottom-up

India has been able to expand its primary care provision at pace because it is not starting from zero but leveraging leading practices from existing clinics. In other words, although the impetus for the reforms came from the federal government, there is a bottom-up dynamism to how they are being implemented. When existing leading practices are identified in one

area, states are given financing, training and capacity building to replicate it. "If something good on palliative care is happening in one district, we give that example to all other states to follow," says Dr. Agnani. "It was so transformative in nature that everyone was emboldened in working towards building comprehensive primary healthcare."

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50 Government of India. PM-JAY public dashboard.

That level of autonomy is also reflected in the way the reforms are funded. The federal government is using fiscal incentives to encourage states to invest more of their budgets in healthcare. Those incentives — such as match funding for primary care provision — steer spending in a particular direction, but the federal government does not dictate the details of how this should be done. The federal government aims eventually for states to spend 8 percent of their budgets on healthcare.

Connecting the dots with digital

Digital health has been important in India's health reforms, but its roll-out has come alongsidey — rather than at the expense of — an expansion of in-person healthcare capacity. The government's Ayushman Bharat Digital Mission, launched in 2021, assigned a unique health ID to every citizen and established registries of healthcare professionals, healthcare facilities and a system for personal health records. It also spurred the development of new digital health tools by identifying areas of need, asking developers to work on those using national interoperability standards and connecting them with mentors and investors if they were successful.

Dr Agnani says that this digital infrastructure has helped to "connect the dots'' between different parts of the health system. It has increased patient access to primary healthcare teams, opened channels of communication between primary, secondary and tertiary care providers and smoothed the referral process. On top of that, the data contained in the system yields valuable insights that can be turned into policy action.

Purpose-driven

A key ingredient in successfully implementing the Indian reforms so quickly was a strong sense of mission, says Dr. Agnani. In India, as in many other places, the COVID-19 pandemic underscored the importance of strong health systems, and the overall goal of the health reforms have popular support.

> " **You are creating an ecosystem that is translating people's desires into actions. That is the power of people which is very important."**
>
> **Dr. Manohar Agnani**
> Former Additional Secretary civil servant,
> Ministry of Health and Family Welfare
> Government of India

In recent years, KPMG in India has supported the National Health Authority, the implementing body of the Ayushman Bharat insurance scheme by providing support in designing policies, strategies, and development of health benefit packages, in addition to providing IT, data systems, analytics, fraud control, and process audit support. The firm also provided healthcare provider capacity building and other end-to-end operational support for bringing 20-plus insurance schemes under one national umbrella program.

Having a clear transformation vision

Saudi Arabia

Transformation characteristics:

- Hyper-integrated landscape
- Hospitals as high-tech knowledge hubs

Results:

- Five percent life expectancy increase
- 16 percent fewer early deaths from non-communicable diseases
- Road traffic deaths halved

Saudi Arabia's ambitious health reforms, part of the government's sweeping Vision 2030, were laid out in 2016 and have recorded some striking outcomes already. By 2022, life expectancy at birth had risen from 74 to 77.6, road traffic deaths had halved to 13 per 100,000 population and early deaths from non-communicable diseases had fallen by around 16 percent, to 500 per 100,000 population.[51] Reflecting on the reforms, Dr. Khalid AlShaibani, CEO of the Kingdom's Health Sector Transformation Program, highlights the key factors in the progress made so far.

Dr. Khalid AlShaibani
Chief Executive Officer,
Health Sector Transformation Program
Kingdom of Saudi Arabia

Saudi Arabia's health reforms are an exercise in the art of the possible. The two major barriers for most health systems — political will and financing — are not obstacles in the Kingdom, where a transformative long-term vision has been set out and ample funds unleashed to execute it. That authority gives leaders a great deal of freedom in tackling issues common to many health systems: an aging population, a growing burden of chronic disease and workforce challenges. Even so, leaders must still navigate a complex change-management program that involves ramping up the role of primary care, pouring more resources into prevention and using digital health tools to support the transformation. Among the key enablers are the organizational structure of Vision 2030, a commitment to embed health in all policies, and an embrace of technological solutions.

Health as part of a bigger vision

Being part of a wider vision has helped healthcare leaders to quickly move forward with new initiatives. Healthcare is a key plank in Vision 2030, a 14-year economic development plan that aims to create wide-ranging transformation in many areas of society and, ultimately, pivot the Saudi Arabian economy away from oil. Each government ministry has a Vision Realization Office to oversee all strands of the transformation that come under its remit, and Vision Realization Programs which are responsible for the practical execution of new policies and initiatives. This organizational structure has laid the groundwork for the reforms in three main ways:

1 Each ministry striving to hit its targets against Vision 2030 has created a sense of healthy competition and encouraged leaders to think in agile and innovative ways.

2 Placing healthcare firmly under the remit of the Ministry of Health is enabling ministries to break out of traditional silos. Prior to the reforms, the delivery of healthcare was fragmented between the Ministry of Health and other ministries such as Defense. Now, the Ministry of Health is empowered to bring together once-disparate services for the benefit of the whole population. For example, a center of clinical excellence in a particular type of care that once only served members of the armed forces and their families can now be accessed by the whole population.

3 The Ministry of Health has also been empowered to create geographically integrated healthcare ecosystems. It has established 20 geographical healthcare clusters that join up primary care with secondary and tertiary healthcare facilities that will ultimately evolve into accountable care organizations.

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51 Ministry of Health (Kingdom of Saudi Arbia). MOH news. Minister of Health Inaugurates the Global Health Exhibition (2023) with the Participation of the Ministers of Investment and Industry.

Taking a Health in All Policies approach

Health in All Policies is a concept that was championed by the World Health Organization at its eighth Global Conference on Health Promotion in Helsinki in 2013.[52] This concept recognizes that population health is heavily determined by policies that guide actions beyond the health sector. According to the WHO, "a Health in All Policies approach aims to address policies such as those influencing transport, housing and urban planning, the environment, education, agriculture, finance, taxation and economic development so that they promote overall health and health equity."[53] Adopting this concept remains an aspiration rather than a reality in most countries, as flagged in global research by the Partnership for Health System Sustainability and Resilience (PHSSR).[54] Saudi Arabia is unusual and exemplary in taking up a Health in All Policies approach within Vision 2030. The PHSSR report highlights how the Kingdom "has established a cross government, ministerial committee to ensure that public health is prioritized across policy areas."[55] One example is the Green Riyadh Project,[56] an extensive tree-planting initiative that aims to bring about a 16-fold increase in green space in the capital city. It is primarily an environmental initiative overseen by the Royal Commission for Riyadh City but is expected to yield significant health benefits too, through improved air quality, encouraging people to walk and cycle, and a reduction in the ambient temperature.

Embracing tech

Saudi Arabia is using technology to boost connectivity between doctors and patients. In 2022, the Ministry of Health established the Seha Virtual Hospital, which connects top experts with 170-plus hospitals across the Kingdom. It has the capacity to serve more than 480,000 patients every year and has expanded access to specialist consultants well beyond the large cities that normally benefit from these experts. Separately, the Sehhaty app allows users to book instant virtual consultations with doctors.

People have taken up the offer of virtual care with enthusiasm. As of 2023, around a quarter of all consultations in Saudi Arabia were performed virtually. That expansion of telehealth services, alongside the establishment of new healthcare facilities and clinics, has increased the proportion of population clusters with access to basic services from 86 percent in 2018 to more than 96 percent by end of 2024, says Dr. AlShaibani.

Seha Virtual Hospital capabilities

- Connects top experts with 170-plus hospitals across Saudi Arabia
- Capacity to serve more than 480,000 patients every year

Source: Statistics sourced from Health Sector Transformation Program (Saudi Arabia)

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[52] World Health Organization. (2014) Health promotion.
[53] World Health Organization. (2024). Promoting Health in All Policies and intersectoral action capacities.
[54] Partnership for Healthcare System Sustainability and Resilience. (2023). Key findings from country reports: Building sustainable and resilient health systems
[55] Ibid.
[56] The Royal Commission For Riyadh City. (2024). Green Riyadh Project.

Activating communities to address health inequities

Northwell Health, United States

Transformation characteristic:

- Community empowerment

Results:

- Immediate access to child psychiatry available for 230,000 students through mental health partnerships with local school districts
- Mental health visits to emergency departments decreased on average of 60 percent from participating school districts
- US$5M invested over five years to support post-secondary education for underserved youths

Through more than 100 collaborations with faith-based organizations, schools, local businesses and more, Northwell Health is expanding access to services and addressing the social determinants of health. Among its many programs are healthcare for the homeless, mental health first aid training for faith leaders, and a community garden to grow food for food insecure people. Some programs are financed directly by Northwell while others are made possible by grants or federal funding. "We are relentless in our desire to make a difference," says Debbie Salas-Lopez, Senior Vice President, Community and Population Health at Northwell Health. She shares insights on where to begin in activating communities to address health inequities, how to establish trust and how Northwell has equipped individuals in the community that it serves to become agents of change as well as receivers of care.

A data-driven approach

Northwell Health, a non-profit integrated care provider, is the largest health system in New York state and a leader in activating its communities to address sources of health inequity in the most-vulnerable neighborhoods across six metropolitan counties that it serves. The breadth and depth of social needs across a community can be overwhelming. Northwell uses a data-driven approach to determine the neighborhoods of greatest need and where it can make the most difference. It draws from various data sources, including the U.S. Centers for Disease Control and Prevention's Social Vulnerability Index, Medicaid emergency admissions data and social screening data to pinpoint high-need zip codes.

This data also offers a springboard for conversations with community leaders in these areas. Salas-Lopez says that sharing aggregated and anonymized data usually helps community leaders better understand the depth and breadth of problems. Community leaders can also provide insight to Northwell about local factors that fuel issues. This two-way exchange paves the way for discussions about how to collaboratively address social issues or better meet prevalent health needs. That focus is crucial, says Salas-Lopez: "If we were paralyzed by the enormity of issues and the enormity of demand, we wouldn't do anything."

Establishing trust

Salas-Lopez identifies two key ingredients to building trust with community partners. The first is co-creation. "You never *do to* a community," she says. "You've *got to do with* the community." That not only builds trust but will likely result in better interventions because community leaders are best positioned to understand local needs.

The second is to be patient and to ask for patience in return. Social change is slow and incremental, and it takes time to resource and set up ambitious new projects. Salas-Lopez boils down Northwell's approach to: "Going in, being patient, listening actively and being humble. No one knows the community better than community group leaders. No-one."

> " **You never *do to* a community. You've got *to do with* the community**"

Debbie Salas-Lopez MD, MPH
Senior Vice President,
Community and Population Health
Northwell Health

Equipping the community

Activated communities are those whose members are equipped to better care for one another, and Northwell Health has been making this a reality around mental health in particular. The organization identified the key role of faith leaders in supporting community members with mental health issues and partnered with them to better equip them for success.

Northwell offers faith leaders training in self-care, as well as stress and mental health first aid. Northwell has also developed the concept of a lay counselor: community members trained to offer low-acuity mental health counseling in the community. In schools, Northwell is training students to become mental health ambassadors. They are taught about social media, bullying and other common issues in schools and trained to identify when peers may be suffering.

A key feature of the community supporters trained by Northwell is that they are tethered to a qualified professional. Lay counselors practice under the supervision of a licensed clinician. Northwell has embedded a licensed mental health professional in many faith-based organizations. By equipping community members to carry out basic mental health care vastly widens care provision in a situation where it would be impossible to train enough psychologists or psychiatrists to meet ballooning demand. "We're not going to fill that pipeline fast enough," says Salas-Lopez. "So, we've got to find innovative solutions."

The role of digital health

Direct-to-consumer telehealth solutions can alienate vulnerable individuals who lack access to smart phones or computers. But telemedicine is still a powerful tool in the provider-to-provider setting, or for supporting community leaders or individuals who are providing care to their peers. For instance, Northwell Health provides faith leaders with immediate access to a psychiatrist by phone or video call while helping a community member with a mental health issue if an in-person therapist is not available.

The need for mental health care among young people is particularly acute, with a recent global study finding that 14 percent of adolescents had experienced suicidal thoughts over a 12-month period.[57]

Northwell provides timely access to child psychiatry services to 230,000-plus students via mental health partnership it runs with 54 local school districts. The organization has three community-embedded behavioral health centers that are staffed with a child psychiatrist, therapist, and care coordinators that act as clinical hubs for the school districts. These hubs provide direct care to students, clinical guidance and triage support for school clinicians, and education and support for school staff and parents. Thanks to these mental health partnerships there has been on average, a 60 percent decrease in the participating school districts referring their students to emergency rooms for mental health related concerns.

60% average decrease

in participating school districts referring their students to emergency rooms for mental health related concerns

Source: Statistics sourced from Northwell Health

Enlightened self-interest

Health systems are part of the communities they serve and benefit from a healthier, happier population. Recognizing the strong connection between education and health, in 2022 Northwell Health created the Community Scholars Program investing US$5 million over five years to support young people from under-privileged backgrounds in pursuing education beyond high school. Scholars in this program can put their US$19,000 endowment toward tuition, books, food, transportation and other college needs such as laptops. The program enriches its beneficiaries while also growing the pipeline of talent for

the organization to recruit from. Northwell Health does not obligate its community scholars to study subjects related to healthcare, but many do. In 2024, the first cohort of 23 scholars, 18 progressed to a four-year school. The remainder are employed, three in hard-to-fill positions at Northwell Health. The organization also supports adults in the community who are looking for work by teaching them how to write a resume and search for relevant roles. Northwell has employed dozens of people through this program, many in hard-to-fill positions.

KPMG in the US and its foundation are committed to supporting programs that help under-represented groups confront systemic barriers in education, healthcare and economic opportunity. In 2024, the KPMG US Foundation donated US$50,000 in support of Northwell Health programs aimed at tackling inequalities in healthcare, addressing social determinants of health and championing research, education and innovation.

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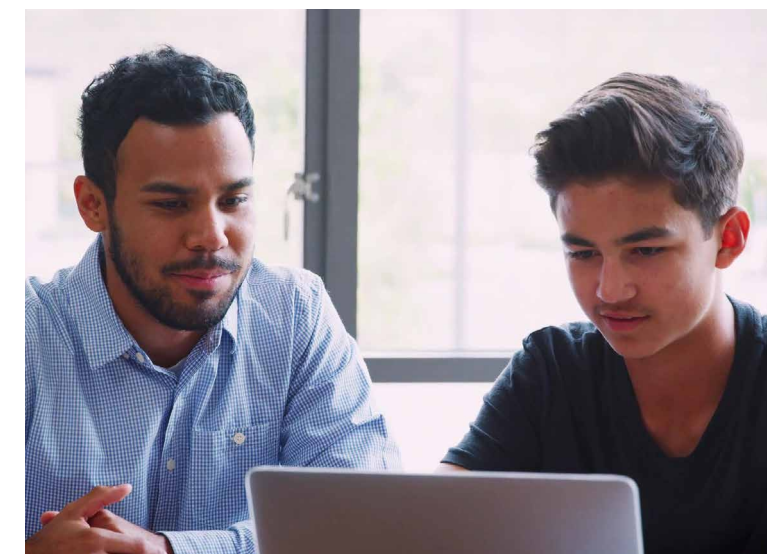
57 Biswas, T., Scott, J.G., Munir, K., Renzaho, A.M.N., Rawal, L.B., Baxter, J., Mamun, A.A. (2020, July). Global variation in the prevalence of suicidal ideation, anxiety and their correlates among adolescents: A population-based study of 82 countries, eClinicalMedicine, 24.

Key takeaways: Healthcare transformers

The previous stories provide instructive insights into the factors that enable successful transformation programs.

Reimagine leadership for the age of transformation

As the pace of change in healthcare continues to accelerate, leaders should adopt a more visionary mindset — moving beyond guidance to disruption. This means challenging the status quo by restructuring leadership models to prioritize agility, innovation and accountability.

- **Break bureaucratic barriers and silos:** Effective governance requires the dismantling of entrenched bureaucracies that may hinder transformation. Leaders should implement governance models that enable rapid decision-making and multidisciplinary collaboration, ensuring that healthcare systems are responsive, dynamic and innovative.

- **Create more agile leadership teams:** Replace slow-moving committees with dynamic, multidisciplinary teams that gather regularly to strategize, solve problems in real-time and rapidly execute decisions.

- **Embed strategic foresight into decision-making:** Mandate the prioritization of strategic foresight into every major decision. The transformative health systems that thrive in the future will not be reactive — they will anticipate challenges and shape their own destiny through bold, long-term planning.

Empower workforces

Workforces are the backbone of health systems, but more than that, they are the engine of transformation. Empowering workforces to innovate and become agents of change will become increasingly important as the pace of technological change increases.

- **Redefine roles:** Redefine roles to maximize efficiency and empowerment. Equip and trust frontline workers to make critical decisions and drive innovation from the ground up. Empowerment should be more than just a buzzword — it should be at the core of workforce strategies.

- **Create autonomous teams:** Encourage healthcare professionals to design and implement innovative programs, such as digital pathways, to foster a culture of ownership and innovation.

- **Embed a culture of continuous learning:** Healthcare systems can be turned into learning organizations where continuous professional development is embedded into daily operations. Equip community members with healthcare skills, creating an ecosystem where more people — patients included — play an active role in the health system.

Turn data into organizational lifeblood

The future of healthcare will be data driven. The transformers featured in this section show that whether working with communities or acute care, data is fundamental to success. Healthcare organizations should urgently transition from fragmented systems to fully integrated, predictive ecosystems where data not only informs but drives care delivery.

- **Implement predictive analytics at scale:** Develop and implement systems that anticipate patient needs and optimize resource allocation before challenges arise. Reactive healthcare is no longer a sustainable model — if you fail to predict, you can predict to fail.

- **Integrate real-time data systems:** Adopt real-time data dashboards across all levels of health systems. Real-time data integration is crucial for informed decision-making and effective care coordination.

- **Expand digital care relentlessly, but inclusively:** Scale telehealth and digital care until they become the default mode of healthcare delivery. Focus not just on urban centers but on reaching entire populations served, ensuring that digital care is as accessible and effective as in-person visits.

Co-create the future with communities

Meaningful and lasting change — where social determinants of health are addressed — will only be delivered in partnership with communities. These communities should transform from passive recipients of care into active partners in healthcare delivery.

- **Use data to fight inequity:** Leverage data to identify high-need areas and inform precision interventions that address social determinants of health in order to direct resources where they are most needed.

- **Foster trust and collaborative relationships:** Build trust and ensure sustainable programs by co-creating health initiatives with community leaders to foster strong, collaborative relationships with the populations they serve.

- **Deploy health forces within the community:** Establish and equip dedicated forces of community health workers, trained volunteers and community leaders who can deliver basic care and health education on the frontlines.

Charting a course to inclusive and sustainable health systems

Actionable insights for ambitious transformation in healthcare

To help others chart their course towards inclusive and sustainable health systems, we imagined what the ideal future of healthcare would look like, informed by changes that are already underway by trailblazers and transformers around the world. Leveraging the Partnership for Health System Sustainability and Resilience (PHSSR) research framework[58] developed by the London School of Economics, we mapped out the incremental steps aligned to our core themes of leveraging technology and data, to empower workforces and activate communities, along with maturity matrices that lay out the route to an inclusive and sustainable future, helping leaders pinpoint their progress on the journey and identify next steps. Aspects of leadership that cut across all three pillars — governance, finance and trust — are also discussed separately in this section.

Understanding transformational maturity

Throughout this section, the maturity matrices describe, in four stages, the journey that health systems should take to get from their current state to one where they are thriving. Aligning of health systems lays the foundations for transformation. In the architecting phase, key elements are being built to support the future state. Integrating health systems brings those elements together to operate at their best. And finally, thriving health systems have the essential elements in place and working together — and there is both the momentum and the apparatus for ongoing innovation.

Maturity matrix levels

Healthcare systems with the following maturity levels:

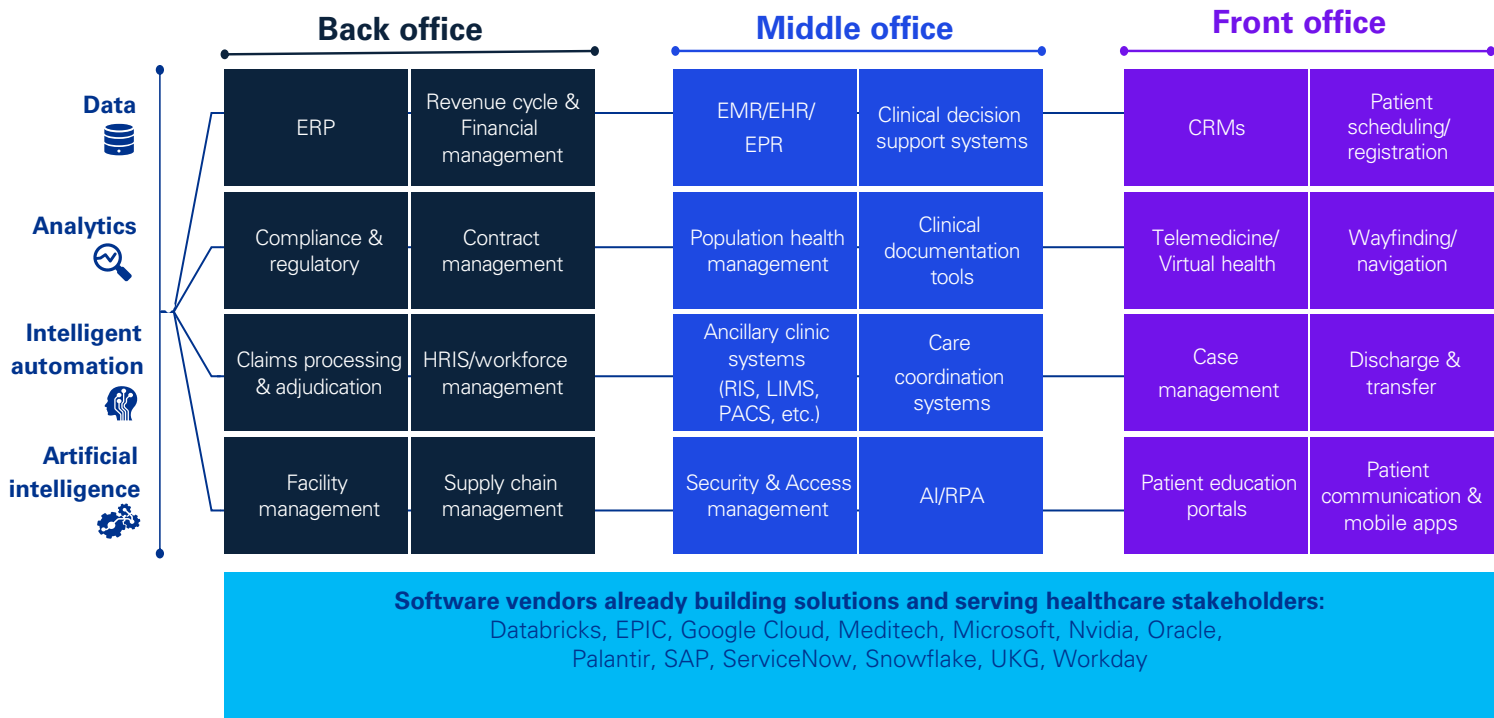| Maturity level	Characteristics
Aligning	Have integrated digital systems, robust change management, identified skill and capability gaps and actioned remediation approaches, completed first high-level impact analysis on AI and new care models, and leveraged data to plan for community interventions and partnerships
Architecting	Employ dynamic data models, proactive workforce planning and active collaboration with community organizations
Integrating	Utilize ready-made software for data analysis and AI, blockchain for secure data sharing, a micro credentialed workforce and enhanced community engagement
Thriving	Strategically collaborate with vendors for AI and analytics, focus on preventive care, integrate sustainably funded social interventions into the system, and have increased community organization involvement

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58 Partnership for Healthcare System Sustainability and Resilience. (2024). Research activities and methodology.

Data and tech: From piecemeal to predictive

Currently, many healthcare systems operate in silos, with fragmented data sets and isolated technologies, limiting their ability to provide holistic care or make long-term strategic decisions. To help achieve sustainable and inclusive health systems, there should be a transition from piecemeal approaches to predictive, data-driven and integrated models, where AI and machine learning play pivotal roles. By harnessing the power of big data, health systems can predict patient needs, optimize resource allocation and implement proactive interventions that help to improve outcomes and reduce costs.

It is tempting to think that any reticence to harness the predictive power of AI in healthcare is because the technology either isn't there yet or cannot yet be trusted to avoid harm. In fact, the technology does exist from commercial sources (see the commercial source technology chart) and governance systems for the use of AI in healthcare are being developed at pace by leaders in the field. See for example the Trustworthy and Responsible AI Network (TRAIN) created by consortiums of healthcare systems in the United States[59] and Europe[60] with Microsoft as their technology enabling partner.

Types of technology available to healthcare organizations from commercial sources

Data / Analytics / Intelligent automation / Artificial intelligence	Back office		Middle office		Front office	
	ERP	Revenue cycle & Financial management	EMR/EHR/ EPR	Clinical decision support systems	CRMs	Patient scheduling/ registration
	Compliance & regulatory	Contract management	Population health management	Clinical documentation tools	Telemedicine/ Virtual health	Wayfinding/ navigation
	Claims processing & adjudication	HRIS/workforce management	Ancillary clinic systems (RIS, LIMS, PACS, etc.)	Care coordination systems	Case management	Discharge & transfer
	Facility management	Supply chain management	Security & Access management	AI/RPA	Patient education portals	Patient communication & mobile apps

Software vendors already building solutions and serving healthcare stakeholders:
Databricks, EPIC, Google Cloud, Meditech, Microsoft, Nvidia, Oracle, Palantir, SAP, ServiceNow, Snowflake, UKG, Workday

Source: KPMG International Healthcare Horizons Revisited, 2024

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59 Microsoft. (2024, March 11). New consortium of healthcare leaders announces formation of Trustworthy & Responsible AI Network (TRAIN), making safe and fair AI accessible to every healthcare organization. Microsoft Source.

60 Microsoft. (2024, June 16). Trustworthy and Responsible AI Network expands to help European healthcare organizations enhance the quality, safety and trustworthiness of AI in health. Microsoft Source.

The real obstacle is that health data is usually too fragmented to deliver meaningful insights. Research by the PHSSR found the interoperability of digital systems, which is vital for improving coordination across different health sectors, remains a significant challenge for healthcare systems globally.[61] Technology and legislation are starting to move in unison to overcome these obstacles: Ireland, Australia and the EU are introducing legislation that mandates health providers to share patient health information to better support patient continuum of care.

Crucially, the transition to predictive, data-driven, integrated models requires not only technological advancements but also a cultural shift that embraces data-driven decision-making at all levels of healthcare organizations, and the appropriate resourcing of teams. Often, population health teams tend to be poorly resourced and badly integrated into overall systems. Once data is interoperable and platformed, teams and an operating model will be needed to drive real value out of the data in terms of averted harm and avoided costs.

Maturity level	Characteristics
Aligning	**Transactional systems:** Use of electronic medical or health records and a digital approach to scheduling, clinical registries and so forth are in place. Digitized data is a basic requirement for predictive AI. **Curated data:** A 'one patient, one record' system is in place that pulls together information from disparate sources such as hospital electronic medical records, clinical registries and genomic databases. **Cloud platforms:** Cloud technology is in place to support the processing power needed to crunch vast amounts of data on a continuous basis.
Architecting	**Dynamic data models:** Data is structured in a way that its relationship to other data elements can help to define new relationships as other sources are augmented in a flexible, real-time manner. **Interoperability:** Data flows seamlessly around the system and can be updated in real-time, so that analytics tools are always working with the most-recent information. The systems used by different players such as provider, payor, primary, secondary and tertiary care and community health organizations speak to one another.
Integrating	**Analytics and AI:** Off-the-shelf vendor software solutions are used to analyze health system data for clinical insights. Software tools that involve little or no knowledge of coding pave the way for healthcare workers to use these tools directly. **Data DNA/Blockchain:** A decentralized approach to data is in place and citizens can trust the healthcare system with their information because blockchain assures that data can be shared in a traceable and auditable way, while maintaining anonymity.
Thriving	**Data standards/sharing:** Data is stored using a common clinical vocabulary, such as SNOMED or LOINC, so that it can be shared with ease and precision and meaningfully compared. **Vendor alliances:** Health leaders strategically partner with vendors as they build up their toolkit of AI and analytic capabilities. **Co-development:** The health system has evolved from being a customer of AI and analytic tools to a co-creator, helping to shape more-customized tools for their own evolving purposes and priorities.

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61 Partnership for Healthcare System Sustainability and Resilience. (2023). Key findings from country reports: Building sustainable and resilient health systems

Workforce: From embattled to empowered

There are simply not enough healthcare workers in the world to continue using the same models of care to meet ever higher demand. The healthcare worker shortage can be addressed in two ways. First, technological tools can take on some of the work of delivering healthcare, either by cutting the administrative burden, streamlining clinical decision making, or both.
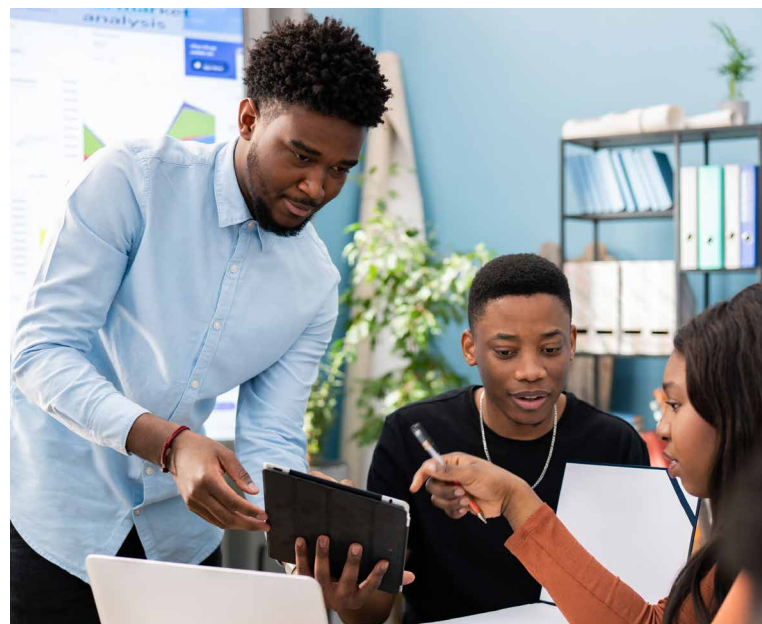
The second way is by expanding the primary care team beyond the family doctor. A great deal of primary healthcare can be delivered by multidisciplinary teams comprising nurse practitioners, pharmacists and other healthcare professionals, with doctors reserved for the most-complex cases. The primary care workforce can be further expanded by micro-credentialed individuals such as specially trained community health workers. We take this re-imagination of the primary healthcare network even further in the activated communities' section on the next page.

Maturity level	Characteristics
Aligning	**Change culture creation:** A robust change management and communication plan is in place to support the roll out of new technology or healthcare delivery models, so that clinicians and workers understand how new tools or models will make their jobs easier or free up their capacity to help more patients. Clinical and administrative staff are actively involved in the planning and implementation as their participation is critical to successful transformation. **Digital, data and technology:** Capability gaps have been assessed and plans have been made to build, buy or partner to fill them. **Impact assessment:** Analysis is done to examine how adopting AI or a new model of care will affect the day-to-day work of clinicians and staff. Insights from this analysis are shared to manage team member fears and expectations.
Architecting	**Workforce planning:** Analysis is done to examine how the transformation program will affect the current and future workforce. Insights on how current working patterns and roles will change is shared with clinicians and workers, up-skilling and re-skilling approaches are co-developed with these stakeholders. Findings on how the transformation program will affect future workforce skill requirements are shared with clinicians and worker representatives and higher-education leaders. These stakeholders are engaged in the development of new training approaches.
Integrating	**Micro credentialing:** Digital platforms and virtual reality are integral to medical training. AI helps to personalize learning paths, allowing healthcare professionals to engage in tailored learning paths based upon the changing needs of the populations they serve and the technology with which they'll be engaging. An increasingly global approach to learning also allows them to connect with global centers of excellence and to share leading practices and experiences in real-time.
Thriving	**Hybrid workforce:** Lay individuals are trained in discrete clinical tasks to significantly widen access to care and free up capacity among clinical workforces. Digital platforms provide training to laypeople and allow them to be recognized for their informal care work. AI also performs many tasks in the healthcare workflow. A culture of digital-first and humans where needed has been developed. **Highly functional primary care:** An expanded primary care team is more effective at preventive care and early intervention, keeping people healthier.

Communities: From atomized to activated

Social determinants of health — non-medical factors such as housing, access to healthy food and loneliness — account for between 30 and 55 percent of health outcomes.[62] Historically, the role of addressing these issues has fallen outside the remit of healthcare. But the case for health systems to address them is compelling: tackling avoidable health issues with relatively simple social interventions is much less costly than letting chronic diseases take hold, requiring complicated and expensive care. Health systems of the future leverage community assets and equip individuals from within communities to deliver preventive care.

Maturity level	Characteristics
Aligning	**Data informed interventions:** Analysis of public datasets on factors such as social deprivation are used to identify neighborhoods most in need of social programs and target interventions accordingly. **Community asset identification:** Potential partners from community-based organizations that can help care for the community have been mapped out. These partners may include postal and fire services, faith-based organizations, nonprofits and businesses in the community.
Architecting	**Relationship building:** To build trust and support meaningful and equal relationships, the needs of community-based organizations have been considered and these organizations work with the system to co-develop interventions to address social determinants of health issues. **Community activation:** Members of community organizations have been trained in healthcare interventions to support community members.
Integrating	**Digital enhancement:** Community group leaders are empowered to deliver certain types of healthcare interventions by connecting community members with experts via teleconferencing with clinicians. **Community empowerment:** Members of the community have become agents of change as well as beneficiaries of social programs. They help their neighbors troubleshoot health impacting issues, connect them to relevant primary care services, and act as their advocates for social support programming. These change agents are trusted because they are recruited from within the communities that they serve.
Thriving	**Payer engagement:** Social interventions begin with grant funding but as the value of activated communities has become easier to measure, social interventions are increasingly funded in a sustainable way from within the health system. **Momentum:** Social interventions are integrated into the health system and more community organizations become involved.

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62 World Health Organization. (2024). Social determinants of health, Overview.

Governance, finance and trust

Strong governance, the right financial backing and payment structures, and trust, are threads that run through transformational change in any area. A common obstacle for transformation is the belief that these elements must be perfected before a transformation program can begin. The reality is that governance, finance and trust can and will evolve over the course of transformation. The key is that they are all moving in the right direction.

- ### Governance

For us, we believe governance entails three crucial elements: leadership and visioning, accountability and performance, and risk assessment. The goal is a shared vision set out by strong leaders, with oversight frameworks in place to measure performance and risk.

At the outset of transformation, leaders should have a clear vision. Their vision should align with the guiding principles of the organization and there should be a governance structure in place for oversight, even if detailed frameworks haven't yet been developed.

Key performance indicators (KPIs) will be important throughout the transformation. Even if it is difficult to measure and report on these early in the process, KPIs should be formulated to be measurable and reportable down the line. Stakeholder analysis should inform the vision and how it will be executed by identifying pain points and risks, and mapping out who should be involved with, and informed about, the program. Given high interest rates, and tax revenue likely to decline with aging populations, there should also be governance around efficient use of capital. Any investments should clearly support the transformation vision.

As change progresses, healthcare leaders should develop robust accountability and performance frameworks, including the ability to measure and report on KPIs. Full organizational risk assessments should take place early in the process of transformation.

In system-wide transformation, organization-level vision and governance should eventually dovetail with that of the broader system. This may begin as a vision and governance framework for a coalition for the willing that will expand over time.

- ### Finance

We envision finance running along two tracks: the investment into the healthcare organization or system to execute the transformation, and the right flows of money around the system to support its aims.

Transformation takes time and is complex. It benefits from long-term and flexible financial commitments, ideally served by revolving funding. As leaders set out to transform an organization or system, they should have a clear understanding of the value and investment cases for transformation. Clear investment plans are needed that identify potential barriers to funding as well as likely sources of finance, such as impact funds.

As transformation develops, leaders should establish systems for measuring progress against desired outcomes. This might come in the form of proxy measures if the ultimate outcome is difficult to measure in the short term.

Governments and payors of thriving and transformed health systems should have multiple payment models fit for purpose, where payments incent good patient outcomes. That requires high-quality patient data, complemented by privacy legislation that enables that information to be shared with relevant parties, and transparent, accessible analytics. Funding should also flow across sectors such as aged care, and human and social services.

- **Trust**

Strong governance is essential to build trust, but inclusivity and accountability to citizens and workforces are also crucial.

Healthcare workers need to see the potential benefits of transformation and be invited to give their views or contribute their ideas throughout the entire development process. A prime example of this is in Finland, where clinicians have collaborated with coders in the design of the digital care pathways that affect them. Eventually, this kind of co-production evolves to the stage where changes are driven from the bottom up.

Citizens must also be won over. Trust in healthcare organizations is declining around the world, alongside rising concerns that technological advancements, far from being fundamental to improving healthcare, will have negative impacts such as increased costs, compromised privacy, and worse outcomes for patients.[63] Populations must understand why health systems need to transform and the tangible benefits they can expect.

Accountability is crucial to win workforce and citizens' trust. It begins with setting out clear criteria to evaluate progress, making transparent the goals leadership is measuring itself by. It clearly delineates who is responsible, accountable, consulted and informed on various actions. All transformation comes with a loss as leaders ask teams to radically change their habitual ways of working. Members of the public may lose certain services, such as local hospitals, before they gain new ones such as improved primary care. Being upfront about the inevitable loss that accompanies change, and helping people navigate it, can help build trust in leadership.

Given the important role of artificial intelligence in bringing about health system transformation, it is key to implement guardrails that will reassure the public and the workforce that the new technology won't cause harm. Control frameworks provide reassurance that the applications are performing in the correct way.

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[63] Edelman Trust Institute. (April 2024). 2024 Edelman Trust Barometer Special Report: Trust and Health.

Five common transformation obstacles

Practical advice on how to navigate around them

Based on KPMG professionals' experience supporting transformation programs, and on conversations with healthcare leaders interviewed for this report, we've identified five common obstacles that tend to hinder progress in transformation programs and offer practical advice on how to navigate around these challenges.

1 Lack of strong leadership

Transformation demands difficult decisions and every call will result in winners and losers. Leaders should show vision, bravery, decisiveness and empathy — and they need to know that they are supported in doing so.

Navigational advice:

- In the Defense industry, providing 'air cover' relates to the use of aircraft to protect ground or naval military operations. In the context of this report, the term relates to defending leaders from stakeholder pressure and public backlash associated with actioning transformation agendas. For example, in publicly funded systems, healthcare leaders need strong support from senior political figures to embolden their ability to make tough decisions when necessary. In commercial systems, leaders may need protection from activist investors.

- Transformation is not a one-person show. Leaders should have a team of trusted advisors with the right skills to help them navigate the many aspects of change amid radical transformation.

- All too often, leaders are risk-averse due to a fear of failure. Establishing a culture that grants permission to fail and learn from those failures can empower leaders and their teams to make braver decisions or explore more-innovative approaches.

2 Tension between the now and not yet

Transformation programs often run in parallel with the complex day-to-day running of healthcare services, an approach that can limit progress when there are so many urgent issues demanding time and attention. Leaders and their teams should be positioned to focus on key activities related to achieving longer-term transformation goals.

Navigational advice:

- Creating a dedicated transformation team whose members are alleviated of all or some day-to-day operational tasks can help to provide the time and space needed to focus on longer-term planning and transformation-program execution.

- Every layer of an organization should be represented in the transformation team, so that no group is left behind during transformation and teams have a good understanding of the overall vision and the specific benefits that it will deliver.

- To manage team and stakeholder expectations, leaders should effectively communicate that large-scale transformation takes time, and report milestone achievements along the way to maintain stakeholder enthusiasm.

3 Public perceptions

Health system transformation is expensive and, in many jurisdictions, funded from the public purse, so citizens want to see what they are receiving in return. Investments in technology, workforces and communities are less visible than physical infrastructure such as new hospitals and such programs can therefore face public skepticism.

Navigational advice:

- When communicating about change, people need to understand the *why* of the change before the *how*. Leaders should consistently use clear messaging that explains the circumstances driving the need for change, what the overarching transformation vision is, and the benefits people can expect – for example better access to services or shorter procedure wait times.

- It is also important to be transparent about the timelines required and that change will be gradual, to manage public expectations.

- Branding transformation programs can also be helpful when announcing and reporting on the progress of these multi-year undertakings.

4 Clarity on responsibility

Transformation programs are by their nature wide ranging and operate along multiple tracks, making it easy for ambiguity to arise over lines of responsibility. For these reasons, it is essential to define who is responsible for each aspect of the transformation.

Navigational advice:

- Undertaking an 'RACI' assessment to identify who is *responsible, accountable, consulted* or *informed* for all parts of a change program can combat ambiguity related to lines of responsibility.

- Those assigned responsibilities or accountabilities should have an appropriate level of authority to act and make decisions.

- Establish strong governance that holds teams to the overall vision. The rhythms of oversight and reporting will rapidly expose any responsibility gaps that need to be filled, as well as reinforcing lines of accountability

5 Time to realize value

A major challenge in transformation is that it takes time to see results, and this can be hampered by single-year funding approaches. Be sure to celebrate regular milestone achievements and, where possible, set up a revolving fund that doesn't hold leaders to arbitrary fiscal calendars for finance.

Navigational advice:

- Breaking down transformation into smaller steps that can, where possible, deliver little wins along the way, can help to maintain stakeholder and public enthusiasm. These smaller steps could target pain points where people will be particularly glad to see change. A general principle is that it is encouraging if evidence of change is seen within a year.

- Setting multi-year transformation plans and key performance indicators helps to map out the transformation journey and show progress. Agreeing to multi-year, revolving-funding arrangements gives leaders the freedom to stick to the overall vision while having the flexibility to bring forward or delay certain aspects of the transformation as situations evolve. For front office clinical model changes, more funding will likely be needed to support the double running of new models while sunsetting old approaches. Leaders should also take care to avoid allocating limited capital and team capacity to pet projects.

- Although transformation is a stepwise process, try to take the 'largest small step' to establish a sense of forward momentum. Firmly establishing new programs or approaches also makes it more likely that those changes will endure even if the political situation changes. It is far more difficult to take things away once they've been established than it is to scrap plans.

Executive summary | Foreword | The case for transformation | Trailblazing the future for healthcare | Healthcare transformers | Charting a course to, inclusive and sustainable health systems | Five common transformation obstacles | **Conclusion** | About KPMG Healthcare | Methodology | Report authors and contributors

Conclusion

Our aim with Healthcare Horizons Revisited is to provide a compelling case for transformation in healthcare systems. We feel that action should be taken now to help improve sustainability and resilience of these vital systems. At the same time, we realize that the depth of transformation required for a truly sustainable and inclusive future is daunting. By showcasing trailblazing examples and transformer interviews that illustrate where radical change is already happening, we believe we can offer a beacon of hope. While change is not easy or fast, these encouraging examples show it is possible.

Next steps

- Consider starting your organization's transformational journey with targeted interventions to get your data and technology infrastructure up to speed, and to help remedy workforce and community pain point issues.

- Use the Healthcare transformers key takeaways to assess the enablers that are in place, those that need to be developed, and obstructions that will need to be mitigated, to develop an effective transformation program.

- Develop a roadmap based on the maturity matrices, identifying the starting point, the aspirational end goal with intermediate stations and the steps to be taken.

Need help?

At KPMG, we are committed to helping healthcare systems and organizations navigate the choppy seas of transformation. KPMG firm dedicated sector specialists are passionate about healthcare and their desire to help organizations achieve outcomes as efficiently and effectively as possible. Contact us today to learn more about how we can help your organization in its transformation journey.

About KPMG Healthcare

We are a global organization of professional services firms whose consultants provide support to healthcare systems, provider, and insurance organizations. Our multi-disciplinary approach allows us to pull resources from across geographies, disciplines and areas of experience from a network of 5,000 dedicated professionals who are focused on healthcare in more than 70 countries and jurisdictions. This network includes almost 200 clinicians who have a wealth of frontline health and care experience as physicians, nurses, paramedics, social workers and other professions.

Global insights, local experience

Approaches that have worked in one jurisdiction can often be applied to others. By collaborating globally, we help ignite transformative change by leveraging:

- A 'global-local' approach that combines knowledge of domestic healthcare systems and their stakeholders with global insights, leading industry practices and subject matter experts, allowing organizations to navigate their unique challenges while staying on top of global trends.

- A suite of market-tested digital health solutions and global alliances with world-leading technology and data companies.

- A dedicated network of healthcare-sector audit, tax and advisory professionals.

We're ready to help

Around the world, governments, insurers and commercial healthcare providers turn to KPMG firms because of our wide breadth and depth of sector knowledge. As a testament to this, many of the case studies found in this publication clearly illustrate the abilities of KPMG professionals to assist healthcare organizations and systems in bridging the gap between challenges and opportunities.

No matter where your healthcare organization is on its transformation journey, KPMG firms can help. Talk to us today to learn how we can make a difference as your organization addresses today's challenges and future needs. A new world of healthcare awaits.

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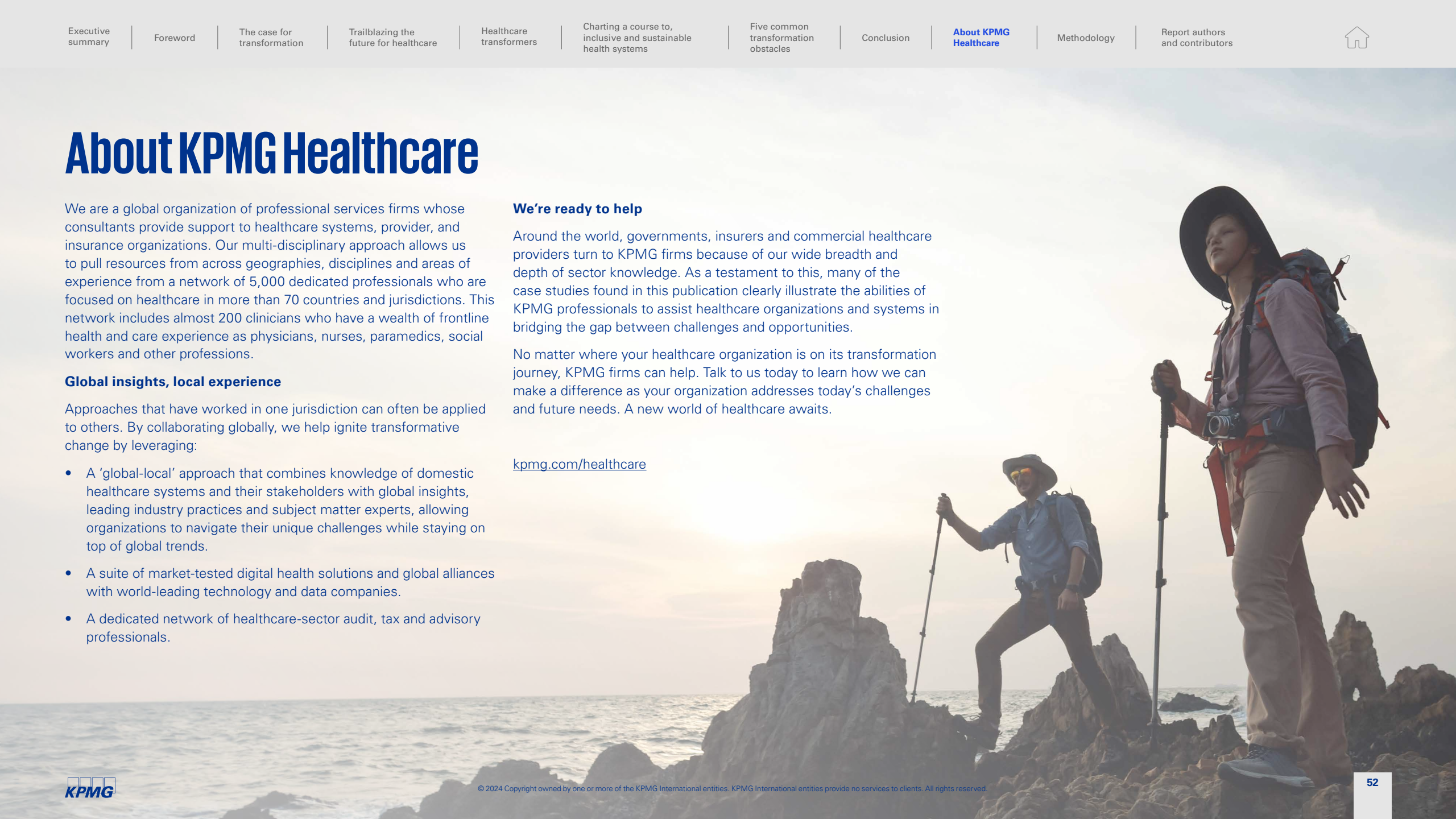
Methodology

In developing Healthcare Horizons Revisited, we set out to provide healthcare leaders with actionable insights and practical guidance to navigate the complex landscape of healthcare transformation and capture both broad trends and nuanced experiences of healthcare leaders. To develop this report, we followed a three-phased approach:

1 Generating insights

- We solicited and reviewed more than 50 leading healthcare transformation examples from 18 countries around the globe to provide trailblazing real-life examples of innovative approaches and their outcomes.

- We conducted interviews with five leaders who are heading up major transformation programs in Canada, Finland, India, Saudi Arabia and the United States. The focus of these interviews was on both the details of the system transformation and the change process itself.

- We conducted an additional data-collection process based on secondary research of KPMG reports, literature, academic papers, industry reports and intergovernmental organization publications. This process was used to contextualize our findings and identify any gaps in knowledge.

2 Content development

- In June 2024, we gathered a group of co-authors and contributors from five countries for a three-day in-person workshop to discuss insights from our trailblazer research and transformation interviews. This group consisted of both KPMG healthcare subject matter experts and representatives of an independent healthcare think tank. This group assessed the trailblazer case studies across several criteria to select the examples featured in this report.

- For the development of the maturity matrices in the 'Charting a course to inclusive and sustainable health systems' section, we leveraged the research framework from the Partnership for Health System Sustainability and Resilience (PHSSR). This framework[64] was developed by the London School of Economics for PHSSR and has been used to conduct health-system research in more than 30 countries.

- The remaining report content and predictions were developed during the workshop using a structured process.

3 Validation process

- The transformer stories and information within them were validated with the interviewees and their organizations.

- The resulting content of this report was reviewed and validated by additional contributors.

It should be noted that the authors and contributors of this report have more than 280 years of combined work experience in healthcare consulting (with specialization spanning system transformation, integration, governance, operations, data and tech, workforce and payment reforms), health research and policy analysis, and include multiple former clinicians.

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[64] Partnership for Health System Sustainability and Resilience. Research activities and methodology.

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Anna leads the KPMG healthcare network of 5,000 professionals who provide Audit, Tax and Advisory services to healthcare organizations in 70 countries and territories around the world. She is a trusted advisor to health leaders ranging from ministers of health, hospital CEOs and executives of payor organizations across six continents. She draws on more than 30 years of experience in diverse senior managerial, board and consultancy roles in the sector. Dr. van Poucke has a PhD in Economic Sciences from Erasmus University Rotterdam.

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Michael collaborates across the KPMG global organization to help large and small, public and private health systems and organizations to understand, plan and transform their healthcare workforces. Michael has almost 30 years of healthcare experience. He is a graduate of the National Health Service (NHS) Management Training Scheme and spent 24 years working with the organization to improve healthcare services. He transitioned his career into professional services in 2007 and has been with KPMG since 2016.

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Aaron collaborates with the KPMG global organization on a suite of approaches aimed at transforming health and care systems to help achieve better health outcomes for local populations, enhance quality of care and help reduce inequalities, improve staff morale, and achieve greater value for money. Aaron is also a partner with KPMG in Canada's digital health practice. He has over 20 years of experience as a clinician, hospital manager and consultant. His work experience ranges from provincial levels through to the front lines of care.

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Anwer is a healthcare and life sciences technology consulting leader with a track record of launching and growing large-scale technology-based practices and market offerings across healthcare ecosystems. Anwer leads and collaborates with a global network that creates digital solutions to help address critical challenges and support transformation in healthcare organizations in agile, secure and scalable ways. He is also an Advisory Partner with KPMG in the US' Customer and Operations, Health and Government practice. Anwer holds several registered patents in the United States in the areas of health data management and advanced analytics. He is also a frequently published author and speaker on pressing technology topics.

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Kenny has worked as a healthcare industry consultant for over 15 years across the United States, Asia Pacific and Europe. His multi-jurisdictional experience includes supporting strategy, transformation and innovation programs for commercial health/payor/provider/life sciences and MedTech organizations. He has been at the forefront of developing and delivering digitally enabled business models at scale, including aggregation platforms, telehealth, remote monitoring, digital health products and therapeutics. His work has given him deep experience across the care continuum and an understanding of the true potential of effective data, platforms, digital capabilities/products and evolved care models.

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Eveline has more than a decade of experience in strategic and operational healthcare consulting. She has led large-scale transformation engagements for clients both in the United States and in Europe in the provider, payor and government arenas, primarily on projects related to reshaping the healthcare landscape to support access, cost-efficiency and high-quality care for high-cost, high-need populations. For KPMG in the US, she leads the Payor and Payment Innovations group, supporting managed care and state entities to restructure their healthcare purchasing, delivery system and quality improvement approaches. Since 2015, Eveline has served as lead for one of the largest government healthcare transformation programs in the US aimed at reducing a state's avoidable hospital use and introducing a new value-based approach to remunerating Medicaid providers.

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