future health index 2021

A resilient future

Healthcare leaders look beyond the crisis

The Future Health Index is commissioned by Philips

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Foreword

Jan Kimpen
Philips Chief Medical Officer

> *Amid the crisis, what stands out is just how skillfully the sector has risen to the challenge.*

As we reflect on the past twelve months, it would be easy to feel dispirited. The global pandemic has taken a significant toll on patients and healthcare staff, obliging them to swiftly respond and adapt. Global healthcare systems have experienced unprecedented strain. Frontline healthcare workers have faced greater pressures than ever before leaving many suffering from burnout, while senior leaders have been charged with leading their institutions in the most trying of times.

But amid the crisis what stands out is just how skillfully the sector has risen to the challenge. The Future Health Index 2021 report reminds us that although the world continues to battle the pandemic, there are pockets of positivity. This year's report explores how healthcare leaders are meeting the demands of today as they prepare for an uncertain future. It uncovers their experiences, priorities, and aspirations. And while acknowledging the difficulties presented by the pandemic, the findings reveal a sense of optimism, resilience, and hope for a brighter future.

Over the past year, it's clear and understandable that most healthcare leaders have been focused squarely on patient care. But even as they navigate these challenges, many express an appreciation for, and anticipated adoption of, value-based care.

Healthcare leaders have seen firsthand the part that digital health technology has played in recent months, helping to ensure the continued delivery of care in incredibly difficult circumstances. As a result, many are reassessing their facility's technological capabilities as they consider what's next. Smart collaborations and meaningful partnerships will be critical to achieve digital transformation.

Encouragingly we can expect greener healthcare systems over the next three years, with most healthcare leaders pledging to prioritize sustainable practices within their facility.

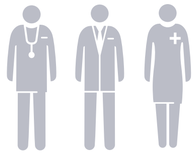
None of us can be certain of what the future holds. But what shines forth from this report is that healthcare leaders are committed to building a future that is sustainable, adaptable and – above all – resilient.

Research premise

In its sixth year, the Future Health Index 2021 report is based on proprietary research across 14 countries.

The research considers how healthcare leaders* are meeting the demands of today and what the new reality of healthcare post-pandemic might look like. Specifically, the report explores the challenges they have faced, their investment in digital health technology, and a new emphasis on partnerships, sustainability and new models of care delivery, both inside and outside the hospital.

This is the largest global survey analyzing healthcare leaders.



Responses from almost

3,000

healthcare leaders

Across

14

countries

Countries included in the research

Australia	India	Saudi Arabia
Brazil	Italy	Singapore
China	Netherlands	South Africa
France	Poland	United States
Germany	Russia	

*Healthcare leader is defined as a C-suite or senior executive working in a hospital, medical practice, imaging center/office-based lab, or urgent care facility who is a final decision maker or has influence in making decisions.

Theme 1

Learning from the past, optimistic about the future

Despite the pressures of the past year, data from the Future Health Index 2021 report reveals that healthcare leaders are feeling positive about the future.

Most agree that both their hospital or healthcare facility and their country's healthcare system have shown resilience, and, in many cases, believe healthcare policies and plans in place are contributing to resilience.

At the same time, the crisis has also accelerated much needed radical shifts in care delivery for both patients and providers. One vital example is the focus on investment in telehealth and virtual care.

The research also highlights an evolving relationship with value-based care* over the past year. The pandemic has necessitated an increased focus on volume over value metrics. As such, some healthcare leaders indicate their value-based care plans have been paused but will pick up in the future.

While facing an uncertain future and, as they reflect on what that might look like, healthcare leaders feel well equipped to deliver quality healthcare.

> *I'm very confident [for the future] ... Germany has a functional and modern healthcare system, with [sufficient] financial investment.*
>
> **Partner, private practice, Germany**

*The concept of healthcare professionals receiving reimbursement based on patient health outcomes rather than on the volume of tests or procedures completed.

Pandemic prompts focus on virtual care

Leaders in India, the United States and the Netherlands go remote

At the time this research was conducted, many healthcare systems globally continued to grapple with very high patient numbers, lockdowns, limited testing and delays in vaccine rollout.[1]

As a result, healthcare leaders ranked preparing to respond to crises as their top priority, followed by facilitating a shift to remote or virtual care. This includes remote monitoring for hospital inpatients and outpatients, as well as telehealth consultations between healthcare professionals and between patients and clinicians. Those in India, the United States and the Netherlands are more likely than their peers across many of the countries surveyed to prioritize this shift.

Over two-thirds (68%) of healthcare leaders cite the current crisis as the main external factor in preventing them from planning for the future.

Healthcare leaders' current priorities

Preparing to respond to crises

Facilitating a shift to remote/virtual care

A heavy financial burden for health systems

Studies have shown that most healthcare leaders have faced significant financial and economic pressures over the past year. More than US $200 billion was lost by hospitals and health systems in the United States alone between 1 March and 30 June 2020.[2]

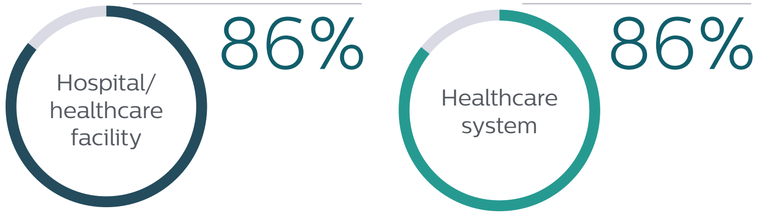
Confidence in the future, despite a heavy toll

Resilience in a crisis

Even while facing immense challenges, most healthcare leaders feel positive about their hospital or healthcare facility's response to the crisis.

Most agree that their hospital or healthcare facility and their country's healthcare system have shown resilience – defined as the capacity to quickly recover from challenges during the pandemic.

Percentage of healthcare leaders that agree their hospital/healthcare facility and their country's healthcare system showed resilience during the pandemic



> *In three years, I think we will deliver higher quality care. We have learned a lot and I assume that we will be better prepared for the next pandemic.*
>
> **Medical Director, private single-specialty practice, Netherlands**

Assured of their ability to deliver care

As they look ahead, most healthcare leaders feel confident in the ability of their hospital or healthcare facility to deliver quality healthcare three years from now. They are even more optimistic about the ability of their country's healthcare system to do so.

Most healthcare leaders (81%) believe that current policies and plans in their country are contributing to a resilient healthcare system. As new policies and plans are formalized following the pandemic – including more sophisticated emergency response protocol, immunization programs, clear measurement of outcomes and population health initiatives – national health system resilience should be further strengthened.

As detailed in the Future Health Index Insights report: COVID-19 and younger healthcare professionals[3], many younger healthcare professionals have experienced increased collaboration with colleagues across skill sets, more exposure to new ways of using digital health technologies, and have felt a greater commitment to their careers. These evolving practices and shifting attitudes among healthcare professionals are also likely to play a part in this resilience.

A mixed view on value-based care

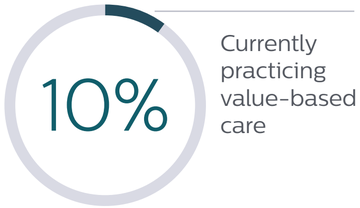
Better care quality at lower costs

Value-based care aims to pay for value rather than volume, by incentivizing providers and other stakeholders to improve access to care and health outcomes, while reducing the cost of care. Although some global healthcare leaders have deprioritized the shift during the pandemic, nearly one-third (33%) plan to pursue it in the future.

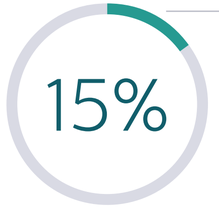
Some healthcare leaders are incorporating elements of value-based care, such as prioritizing patient safety but may not necessarily be operating a full value-based care model. And, those who paused their pursuit of value-based care during the pandemic did so due to shifting priorities, with operational efficiencies and financial stability likely much more important at a time of crisis.

Further adoption of value-based care is hampered by complex structures in the industry and IT infrastructural challenges. A late 2020 US physician survey[4] explored possible reasons behind the slow adoption. Contributing factors included physician compensation based predominantly on volume over value, limited availability and use of decision-making tools to support the practice of value-based care, and existing care models that are ill-equipped to support value-based care.

Healthcare leaders and value-based care

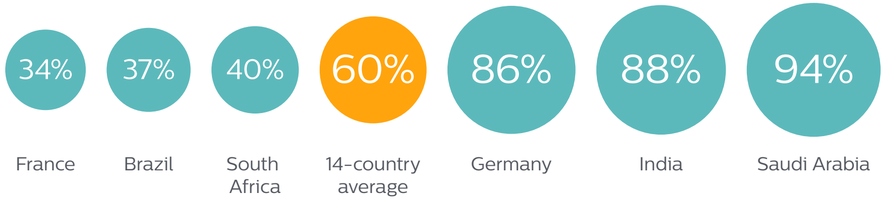


Currently practicing value-based care



Deprioritized the pursuit of value-based care because of the pandemic

Healthcare leaders are at different points in their journey to value-based care:



There is broad variation across countries who are currently practicing, pursuing or planning to pursue value-based care. Those in France, Brazil and South Africa are less likely than the average healthcare leader surveyed across the 14 countries to do so, and those in Germany, India and Saudi Arabia are more likely to do so.

Value-based care in practice

In Europe, there are several pilots in place at public and private medical facilities and insurers to foster a shift towards value-based care. One such example is Santeon, a Dutch network of seven leading teaching hospitals, which achieved reductions of nearly 30% in unnecessary inpatient stays and up to 74% in the rate of reoperation due to complications in breast cancer patients through a value-based care approach.[5]

Theme 2

Taking a three-step approach to digital transformation

As healthcare leaders adapt to the immense changes of the past year, they appear to be taking a three-step approach to digital transformation:

Investment in telehealth to bolster care delivery during the pandemic and beyond.

Investment in artificial intelligence (AI) as a powerful enabler of operational efficiency and improved diagnosis and treatment.

Strategic partnerships with hospitals or healthcare facilities, technology companies and others to drive forward digital transformation.

> *I think many people are coming to the realization that it's going to take investments in technology to be successful in healthcare going forward. There's just no doubt about it.*
>
> **CEO Private Multi-Practice Facility, United States**

Step one: build a lasting digital health legacy

Healthcare leaders invest in telehealth

Today, many healthcare leaders are prioritizing investment in technology that enables their hospital or healthcare facility to respond to the immediate needs of the pandemic, such as telehealth which expands where care is delivered and extends the capacity of care provided.[6]

Healthcare leaders in the United States (89%), the Netherlands (83%) and Saudi Arabia (81%) are much more likely to be investing in telehealth than many of the countries surveyed.

However, looking to three years from now, 40% of healthcare leaders expect to invest heavily in telehealth technologies. This represents a significant drop from current investment levels. One possible reason could be that global healthcare facilities will have already built a strong virtual care foundation. Another reason could be ongoing uncertainties around reimbursement, which were opened up to telehealth in some countries during the pandemic but are not certain to continue.

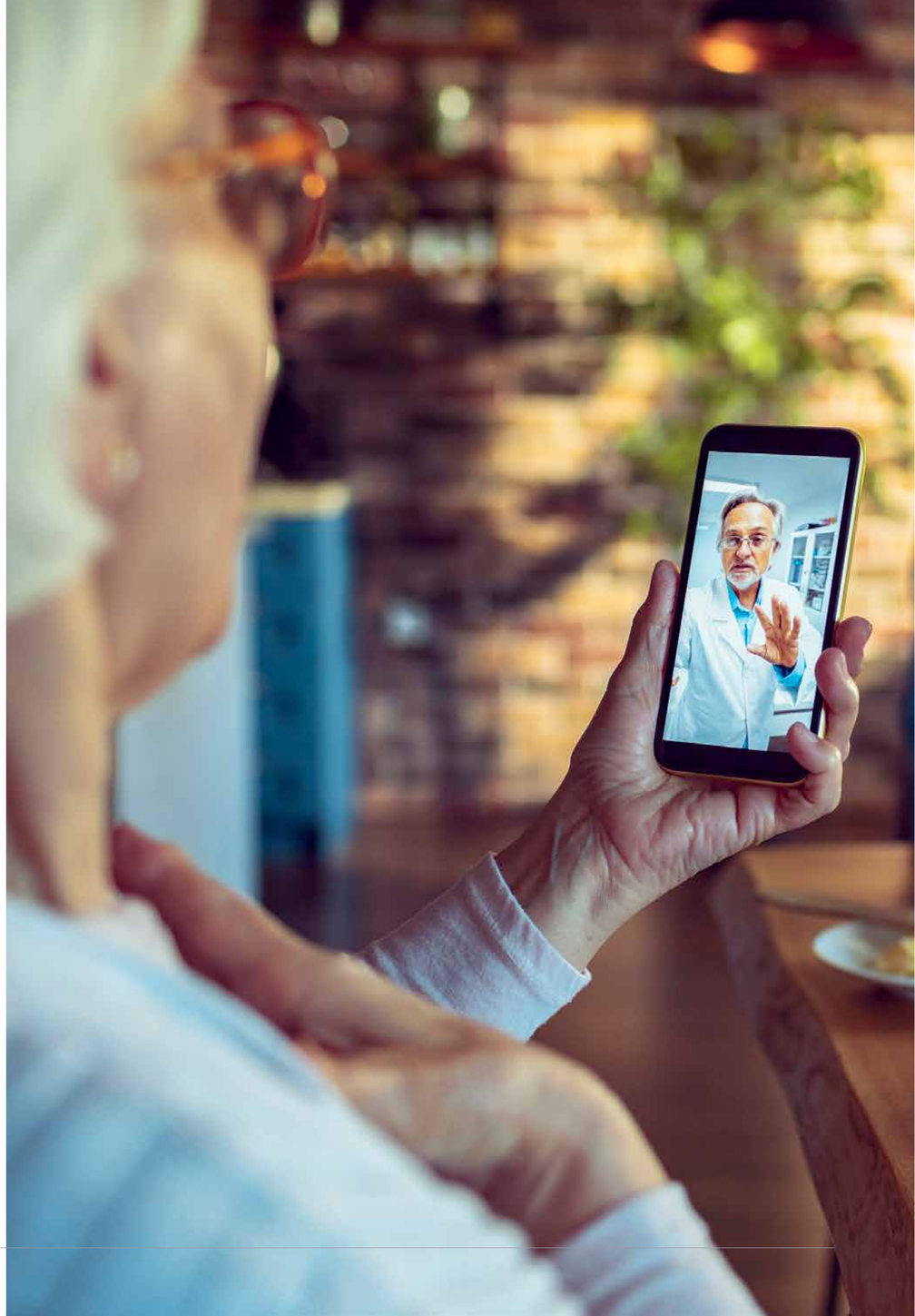
Investment in telehealth

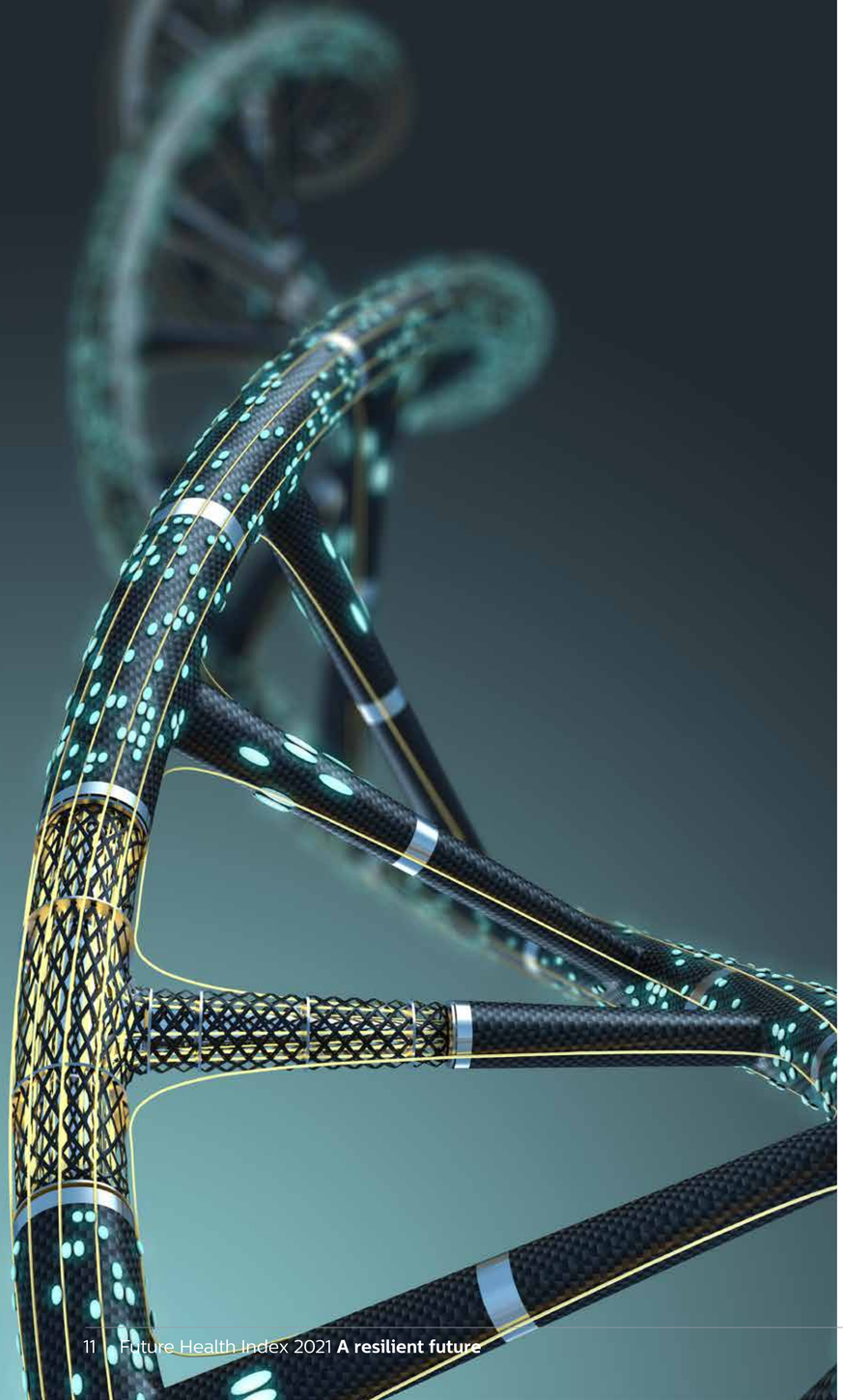
"Before, telehealth wasn't given too much attention. Now, we are investing money, energy and training to promote and carry it out.

Medical Director, Private Practice, China

Technology: a vital lifeline to managing the pandemic

The pandemic has done much to accelerate the adoption of existing digital healthcare technologies and demonstrate their efficacy in exceptional circumstances. Telehealth adoption has soared, according to the American Health Association.[7] Bluetooth-powered digital contact tracing applications are being used around the world to better understand the spread of the virus through national populations. Many healthcare facilities also increased their adoption of cloud computing technology to better facilitate high-traffic tasks, such as automated follow-up with COVID-19 outpatients. The story of healthcare technology's role in the pandemic is still unfolding and will have a lasting impact on healthcare systems around the world.





Step two: invest in artificial intelligence

AI leads the way

Today, investment in AI is not the top priority for most healthcare leaders. However, as they look beyond the immediate demands of managing the pandemic, AI emerges as a key area for investment. This corresponds with the Future Health Index 2020 report[8] which highlighted the excitement of younger health professionals as they explored its potential.

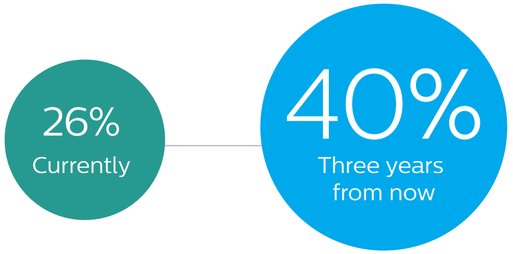
Leaders seek a range of benefits from AI

The use of AI in healthcare is currently grounded in administrative tasks. However, as healthcare leaders look to the future, they envision deeper use of the digital health technology.

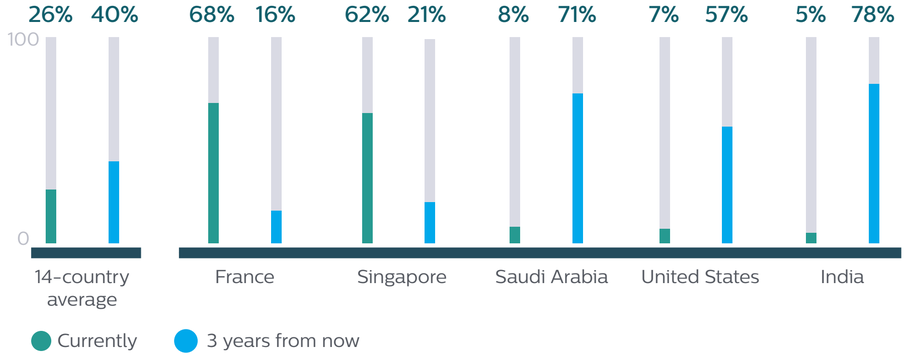
Healthcare leaders are prioritizing investment in AI to optimize operational efficiency (19%) and anticipate doing so even more three years from now (37%). Healthcare leaders also expect to invest in AI three years from now to integrate diagnostics (32%), predict outcomes (30%), and for clinical decision support (24%).

Predictive technologies

Healthcare leaders say their hospital or healthcare facility currently needs to invest in implementing predictive healthcare technologies, such as AI and machine learning, to be prepared for the future. AI technologies that predict clinical outcomes are likely to play a key role in enabling healthcare systems to deliver value-based care.



Healthcare leaders' belief that investment in implementing predictive technologies will prepare their hospital or healthcare facility for the future varies across countries:



> *My top priorities are innovation, computer-assisted medicine, and safe procedures where a machine takes over the skills of the doctor. Much better diagnostics [will be possible] with AI.*
>
> **CEO Ambulatory Care Center, Germany**

Step three: drive change with strategic partnerships

Diverse players can help improve care models

While healthcare leaders look to prioritize AI, they are also convinced of the value of strategic partnerships and collaborations, often with non-traditional players such as technology companies. As healthcare leaders look beyond the pandemic, they see building these partnerships as an important way to continue to foster innovation in their hospital or healthcare facility. The immense value of collaboration is seen in analyst predictions that, by 2025, 40% of hyperconnected innovation will be driven by large-scale social, health, and environmental goals and delivered via ecosystems that include industry players, academia and government.[9]

More than one-third of all healthcare leaders say that their hospital or healthcare facility needs to prioritize strategic partnerships and collaborations in order to successfully implement digital health technologies. Yet, currently only 8% say their hospital or healthcare facility most needs to invest in engaging strategic partnerships to be prepared for the future. Healthcare leaders in France (77%) and Italy (63%) especially believe partnerships can lead to the successful adoption of digital health technology, compared with those in the US (36%), China (30%) and Brazil (22%).

41%

say that their hospital or healthcare facility needs to prioritize strategic partnerships and collaborations in order to successfully implement digital health technologies

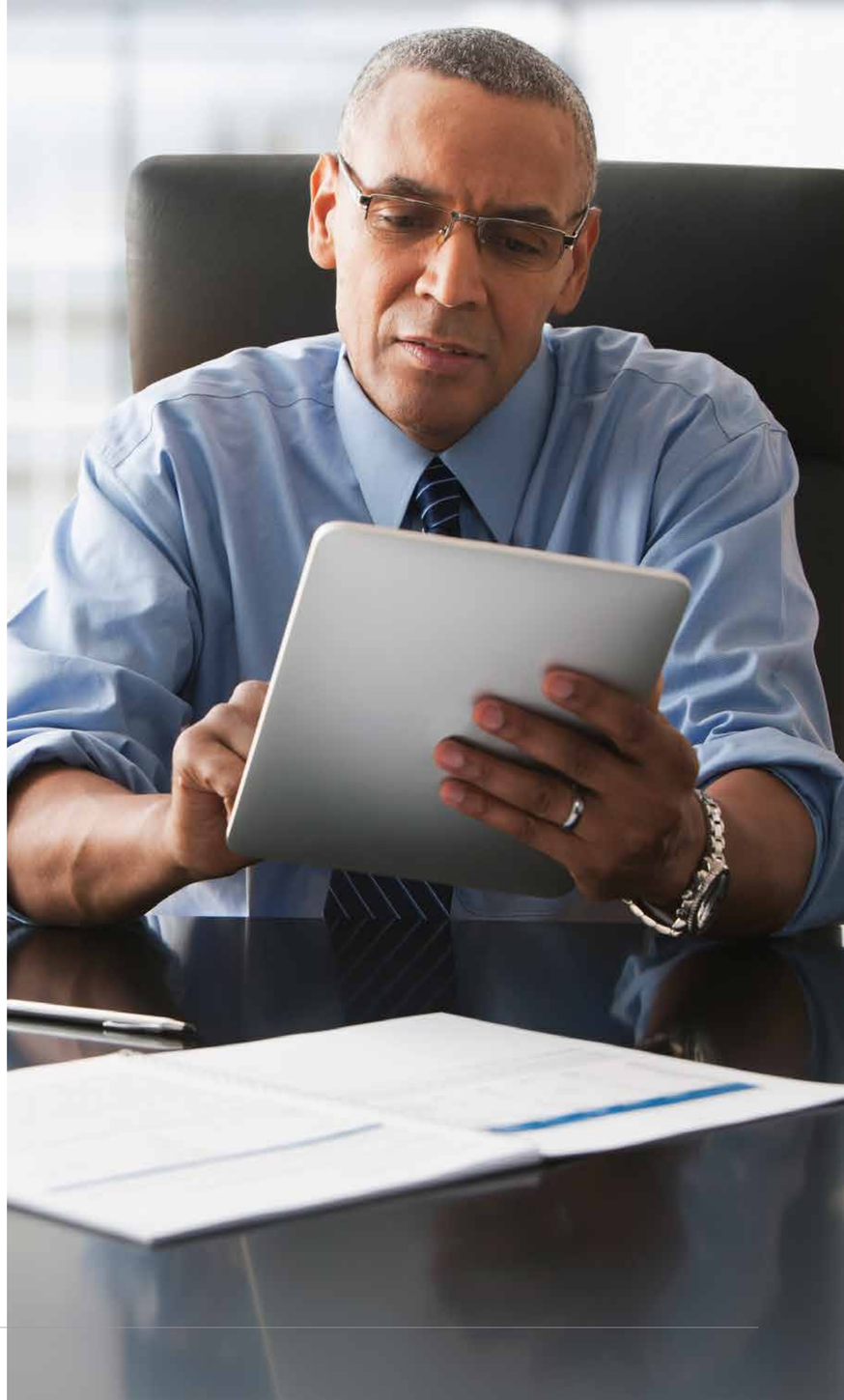
Types of partnerships

One-fifth of healthcare leaders (20%) say that improving technology infrastructure will be a primary priority three years from now, and partnerships can help to achieve this. However, different types of partnerships draw significantly different levels of interest from healthcare leaders.

To drive forward digital transformation, 36% of healthcare leaders want to collaborate with health IT/informatics companies. Additionally, more than a quarter (29%) would like to collaborate with private hospitals and healthcare facilities when it comes to helping the roll-out of technology.

Healthcare leaders say they look for a reliable partner with a proven track record in implementing new technologies and improving interoperability. Interestingly, some healthcare leaders in the Netherlands expressed a preference to work with start-ups, citing their ambition and openness to experimentation.

> *Collaboration is working closely together so partners hear our voices and are willing to take shared responsibility and still keep up the good work. A good partnership takes a lot of work to achieve.*
>
> **Department Head, Hospital, China**



Obstacles to digital transformation remain

The barriers to digital transformation

Healthcare leaders are aware that a successful approach to digital transformation requires overcoming a number of obstacles.

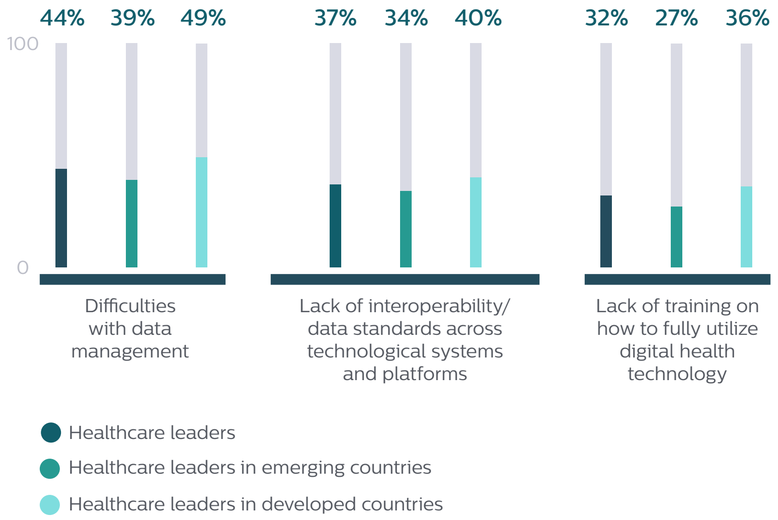
In many cases (53%), staff inexperience with new technology is a barrier preventing healthcare leaders from preparing for the future. This corresponds with the findings of the Future Health Index 2020 report which highlighted the desire of younger healthcare professionals to access increased training to allow them to fully embrace the benefits of digital health technology. Despite this, just 32% of healthcare leaders say a lack of training to fully utilize digital health technologies is a barrier to adoption in their hospital or healthcare facility.

Perennial issues around interoperability and data remain

Other barriers to the adoption of digital health technology include a lack of interoperability and difficulties with data management, likely relating to high volumes of data and a lack of clarity around ownership.

Healthcare leaders in developed countries, in particular, experience difficulties with data management. In many cases, healthcare leaders also have concerns about data privacy and security, with 25% of all those surveyed citing it as a barrier to the adoption of digital health technology.

The biggest barriers to the adoption of digital health technologies:



Theme 3

Building sustainable systems to deliver future-proof care

As healthcare leaders consider life beyond the current pandemic, they are taking a pragmatic stance on where and how care is delivered.

The pandemic has drawn increasing attention to the broader social factors that play a role in healthcare delivery around the world. And, with expectations of more care being provided beyond the hospital walls, healthcare leaders are thinking creatively and strategically about the future of care delivery.

Healthcare leaders are also making an overwhelming commitment to sustainability by pledging to address the environmental footprint of their hospital or healthcare facility once the immediate needs of the crisis subside.

> *In the next 20 years, hospitals will deliver much more than inpatient care.*
>
> **Hospital Director, Germany**

A resilient future beyond hospital walls

Delivering sustainable care in walk-in clinics and homes

Healthcare leaders anticipate that, three years from now, almost a quarter of routine care delivery will take place outside of the walls of a hospital or healthcare facility, from a figure of 20% today. This echoes the sentiment expressed by healthcare leaders in the qualitative research who say that patients are driving an increased demand for remote and at-home care, following its growth in popularity during the pandemic.

23%

of routine care delivery will take place outside the hospital walls three years from now

Ambulatory primary care centers are currently one of the most frequently cited locations for care outside the hospital, just behind long-term rehab facilities and will continue to be a top location three years from now.

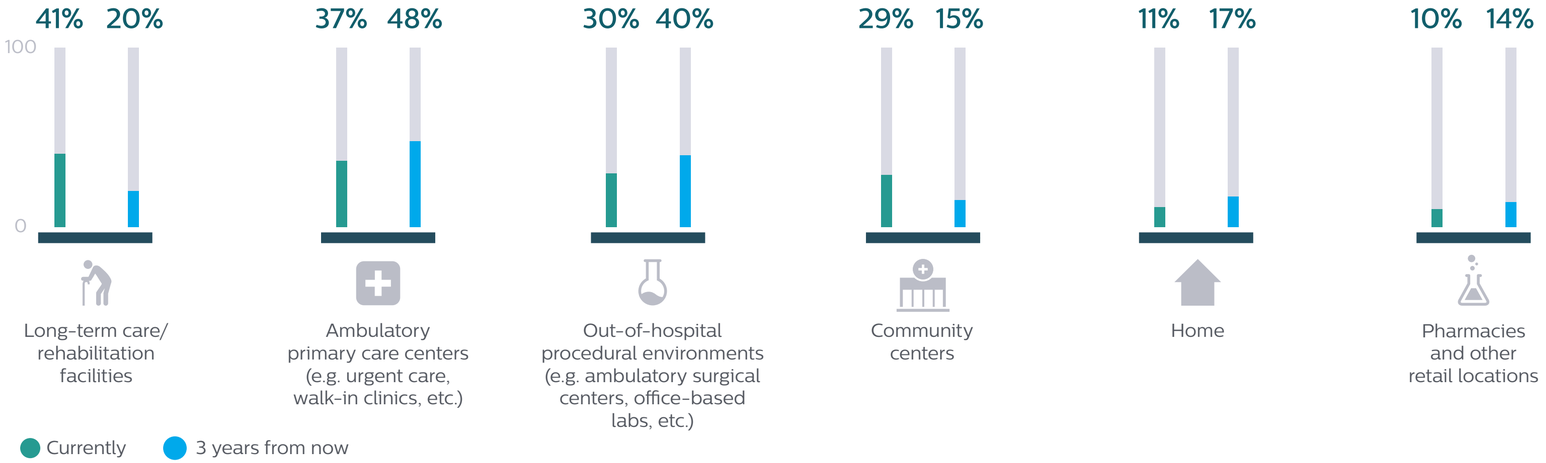
The role of the home, as well as pharmacies and other retail outlets in providing routine care, is expected to increase in the future. Healthcare leaders in Russia (41%) are the most likely of those in the 14 countries surveyed to say pharmacies or retail locations will be the out of hospital site used to deliver care three years from now.

Reimbursement model limitations remain an issue for some healthcare leaders (24%) when it comes to the adoption of digital health technologies – and without the full adoption and use of digital health technologies, moving care outside of the hospital will not be feasible. The degree to which this is a challenge varies from country to country and whether the healthcare leaders are working in a smart or digital facility. Those in emerging countries (27%) are more likely than their peers in developed countries (20%) to cite reimbursement model limitations as a barrier to the adoption of digital health technologies. Healthcare leaders in France (12%) are among the least likely of those in all the countries surveyed to cite this as a barrier.

The patient perspective

Delivering care outside of the hospital or healthcare facility is a theme that has been explored in previous editions of the Future Health Index. In 2019[10], a growing appetite for remote care was already in evidence among the general public, with 27% of those questioned saying they would be open to a remote consultation via digital channel for non-urgent care, and 14% saying they would be comfortable doing so for urgent care.

Top locations (outside of hospital or primary care facilities) for routine care delivery

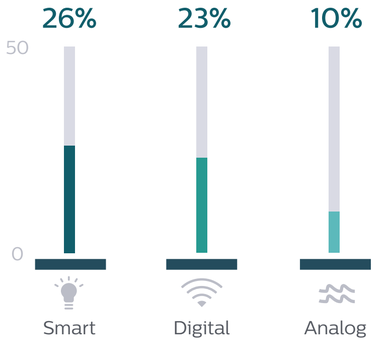


Shift driven by smart hospitals and rural facilities

Exploring the data further, it becomes apparent there are several contributory factors prompting healthcare leaders to be more receptive to a shift in care provided beyond the hospital walls:

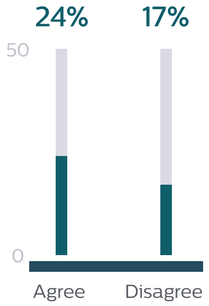
Smart hospitals* lead the way

As the adoption of technology increases, so too does the expected percentage of care delivered outside of hospital walls three years from now:



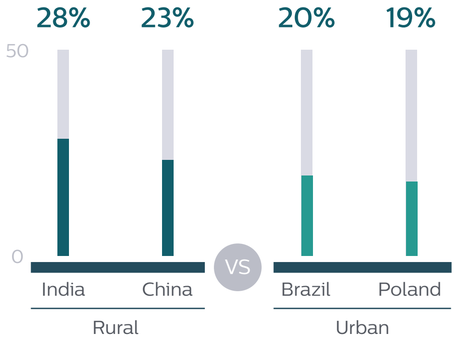
Shift builds resilience

Those who feel their hospital or healthcare facility has shown resilience believe a higher percentage of routine care will be delivered beyond the hospital walls three years from now:



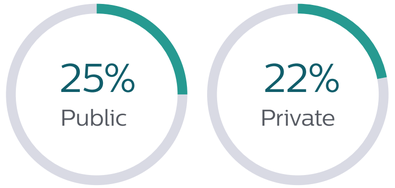
Rural settings more in need

Those whose hospital or healthcare facility is more likely to be in a rural setting** are also more likely to expect a higher percentage of routine care delivery to happen beyond the hospital



Public health systems push too

Those in a public health system are more likely to believe a higher percentage of routine care will be delivered beyond the hospital walls three years from now:



Providing home care, mobile machines, sending the hospital to the patient etc., is the future.

Hospital Owner, India

Cheaper, faster and shorter: why patients are opting for care elsewhere

The evolution of care delivery beyond the hospital walls reflects the changing attitudes of the general public. A 2020 McKinsey report[11] explored the growth in ambulatory surgical centers, the global market for which is projected to grow at a rate of 6% between 2018 and 2023. The report highlighted the growth in patients choosing out-of-hospital care for a variety of reasons including lower costs, faster access, and shorter stays. With patients reporting discomfort around hospital or emergency visits due to the pandemic[12], they are likely to continue to opt for out of hospital care where possible.

* Advanced connected care technologies are used, in addition to patient data and communications being handled electronically.
** Healthcare leaders in China and India are more likely to work in a rural setting than those in Brazil and Poland.

A groundbreaking push toward sustainability

Healthcare industry poised for unprecedented move

The impact of COVID-19 has obliged healthcare leaders to concentrate on immediate challenges: increased patient numbers, staff burnout and financial pressures. Looking forward, however, it seems that many healthcare leaders are heeding the directives of non-governmental organizations, such as the World Economic Forum and professional bodies like the World Medical Association[13], which have challenged the industry to contribute to a more sustainable healthcare ecosystem. A 2019 study found that global healthcare's climate footprint is substantial: equivalent to 4.4% of global net emissions (2 gigatons of carbon dioxide equivalent)[14] compared to 2% produced by the global aviation industry.[15]

While not a current concern, 58% of healthcare leaders expect to prioritize the implementation of sustainability practices in their hospital or healthcare facility three years from now, from just 4% today. This is particularly notable in France where healthcare leaders are among the most likely to say this (86%).

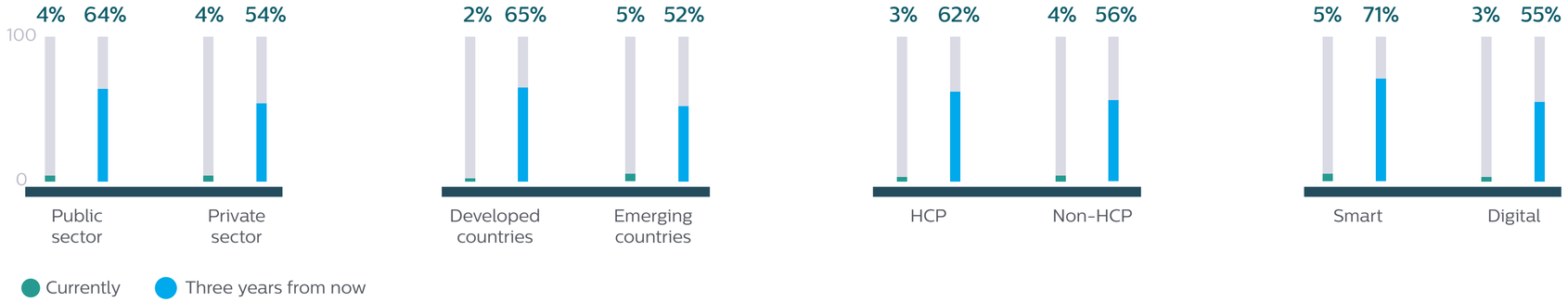
The pandemic has undoubtedly slowed progress in sustainability efforts across many health systems. However, the immense increase in the use of single-use personal protective equipment and critical medical supplies, and corresponding rise in waste disposal,[16] may have encouraged healthcare leaders to reflect on the steps that they can take in the medium term.

Cost savings are also likely to contribute to this drive for sustainability. For example, Cleveland Clinic reported[17] savings of US $2 million in 2017 by reducing their energy use. Notably, healthcare leaders say that their sustainability initiatives often go hand-in-hand with technology advancements, where switching to reusable items instead of single use offers environmental benefits and cost savings.

Telehealth, preventive care and virtual care will also play their part in improving the green credentials of health systems by necessitating less patient travel and increasing caseload capacity.

Sustainability as a key priority for healthcare leaders

Implementing sustainability practices in my hospital/healthcare facility is a priority



Green practices matter to patients and make partners more desirable

Hospitals choose green partners

Sustainability for leaders is not just about the initiatives they make within the hospital; it is also likely a priority when they look to technology providers[18]:

Percentage of leaders identifying these sustainability actions as a clear differentiator

53% Long-lasting design of products – portfolio enabling sustainability

43% Circular economy business models – portfolio enabling sustainability

40% Health and safety – sustainable operations at corporate level

Patients pick green hospitals

A 2019 study found that most patients (94%) considered[19] a hospital's sustainability program to be important and 86% say it played a part in their likelihood of returning for future health needs.

> *Investing in technology is investing in sustainability. I do not see them as separate.*
>
> **Department Head of Pulmonology Hospital, Netherlands**

Report conclusion

Conclusion

A vision of sustainable and patient-centered healthcare, enabled by smart technology

Exploring the findings of the Future Health Index 2021 report, several notable themes emerge as healthcare leaders consider what lies ahead:

Strong optimism among healthcare leaders

A roadmap for benefiting from smart technologies that considers the tools that are currently available to them

Growing interest in sustainability and environmental sourcing

An emphasis on strategic partnerships to foster innovation and deliver much-needed technology infrastructure, with preferences for types of partnerships varying from market to market

Increased anticipation of care delivery outside the hospital, driven by patient demand

Appendix

Glossary of terms

Ambulatory primary care center
Outpatient care centers (e.g., urgent care, walk-in clinics, etc.)

Analog hospitals or practice
Most or all patient data is handled in a paper-based format or using traditional communications, e.g., phone, fax, etc.

Artificial intelligence (AI)
AI refers to the use of machine learning and other methods that may mimic intelligent human behaviors, resulting in a machine or program that can sense, reason, act and adapt to assist with different tasks.

Augmented reality (AR)
A technology that superimposes a computer-generated image on a user's view of the real world, providing a composite view. In healthcare, this can allow a surgeon, for example, to see live data or 3D medical imagery in their field of vision when performing procedures.

B2B health technology companies
Companies that sell products, equipment, or solutions to hospitals and healthcare facilities.

Consumer health technology companies
Companies that sell or provide wearables, health apps and other technology to the general public.

C-Suite -1
A hospital or healthcare executive who is a level below the role of C-Suite. Job titles can include head of department, senior partner, or director.

Data privacy
The culture expectations, organizational regulations and legislation that protect personal information from unauthorized use and dissemination.

Data security
Protecting data against unauthorized access.

Digital health records
Technology that can store a variety of health information, including medical history, test results, health indicators, etc. Digital health records can be used within a certain healthcare facility, across different healthcare facilities, by only the patients themselves, by one healthcare professional or across all healthcare professionals involved in a patient's care. Electronic medical records (EMRs) and electronic health records (EHRs) fall within the term 'digital health records'.

Digital health technology
A variety of technology that transmits or shares health data. The technology can take a variety of forms, including but not limited to home health monitors, digital health records, equipment in hospitals and health or fitness tracker devices.

Digital hospitals or practices
Simple/basic technologies are used, with most or all patient data and communications being handled electronically.

Digital transformation
The integration of digital technology into all aspects of how a healthcare business interacts with patients, healthcare providers and regulators.

Global non-governmental organizations
Organizations such as WHO, World Bank, etc.

Healthcare professional
All medical staff (including doctors, nurses, surgeons, specialists, etc.), and excludes administrative staff.

Healthcare professional-to-healthcare professional telehealth
Virtual communication between healthcare professionals through sharing images, recommending treatment plans, etc.

Healthcare professional-to-patient telehealth
Communication between healthcare professionals and their patients via video calls, patient portals, etc.

Healthcare leader
A C-suite or senior executive working in a hospital, medical practice, imaging center/office-based lab, or urgent care facility who is a final decision maker or has influence in making decisions.

Health IT/Informatics companies
Companies that build communications protocols within healthcare systems (e.g., Cerner, Epic, etc.)

Interoperability
The ability of health information systems to work together within and across organizational boundaries, regardless of brand, operating system or hardware.

Machine learning
A process of AI that provides systems with the ability to automatically learn and improve from experience without being explicitly (re)programed.

Out-of-hospital procedural environments
Care centers such as ambulatory surgical centers, office-based labs, etc.

Predictive technologies
A body of tools capable of discovering and analyzing patterns in data so that past behavior can be used to forecast likely future behavior.

Reimbursement model limitations
Barriers to healthcare payments and benefits.

Remote patient monitoring
Technology that provides care teams with the tools they need to remotely track the health of their patients outside of conventional clinical settings (e.g., at home), collaborate with the patients' other healthcare professional(s) and help detect problems before they lead to readmissions. Examples of this include cardiac implant surveillance, vital-sign sensors at home, etc.

Resilience
The capacity of hospitals or healthcare systems to quickly recover from challenges.

Smart hospitals or practices
Advanced connected care technologies are used, in addition to patient data and communications being handled electronically.

Staff
This refers to all staff, including physicians, nurses, administrative employees, etc.

Sustainability
Meeting the environmental needs of the present without compromising the ability of future generations to meet their own needs.

Telehealth/Virtual care
The distribution of health-related services and information via electronic information and telecommunication technologies.

Value-based care
The concept of healthcare professionals receiving reimbursement based on patient health outcomes rather than on the volume of tests or procedures completed.

Virtual reality (VR)
The computer-generated simulation of a three-dimensional image or environment that, using electronic equipment, can be interacted with by an individual in a seemingly real or physical way.

Voice recognition tools/software
A tool used to convert spoken language into text by using speech recognition algorithms.

Research methodology

Research overview and objectives

Since 2016, Royal Philips has conducted original research to help determine the readiness of countries to address global health challenges and build efficient and effective health systems. In the context of ever-growing pressure on resources and costs, the Future Health Index focuses on the crucial role digital tools and connected care technology can play in delivering more affordable, integrated and sustainable healthcare.

In 2016, the Future Health Index measured perceptions of healthcare providers and patients to produce a snapshot of how healthcare is experienced on both sides of the patient-professional divide. In 2017, it compared these perceptions to the reality of health systems in each country researched. In 2018, the Future Health Index identified key challenges to the large-scale adoption of value-based healthcare and overall improved access. It assessed where connected care technology can help speed up the healthcare transformation process. In 2019, the Future Health Index explored technology's impact on two aspects of the Quadruple Aim: the healthcare experience for both patients and healthcare professionals and how technology is moving us to a new era of continuous transformation. In 2020, the Future Health Index examined the expectations and experiences of younger healthcare professionals aged under 40 and how they can be empowered to meet the demands of tomorrow's healthcare.

The Future Health Index 2021 report considers how healthcare leaders* are meeting the demands of today and what the new reality of healthcare post-COVID-19 might look like. Specifically, the report explores the challenges they have faced, their investment in digital health technology, and a new emphasis on partnerships, sustainability and new models of care delivery, both inside and outside the hospital.

The research for the 2021 Future Health Index was conducted in 14 countries (Australia, Brazil, China**, France, Germany, India, Italy, the Netherlands, Poland, Russia, Saudi Arabia, Singapore, South Africa and the United States).

To provide a holistic understanding of the current healthcare systems around the world, the 2021 study combines a quantitative survey and qualitative interviews conducted from December 2020 – March 2021.

* Healthcare leader is defined as a C-suite or senior executive working in a hospital, medical practice, imaging center/office-based lab, or urgent care facility who is a final decision maker or has influence in making decisions.

**Survey data is representative of Mainland China only and does not include Taiwan or Hong Kong.

Research methodology

2021 quantitative survey methodology

In partnership with iResearch Services, a global business and consumer research services organization, a survey was fielded from December 8, 2020 – February 16, 2021 in 14 countries (Australia, Brazil, China, France, Germany, India, Italy, the Netherlands, Poland, Russia, Saudi Arabia, Singapore, South Africa and the United States) in their native language. The survey used a mixed methodology of online and telephone across all of the countries (as relevant to the needs of each country) with a sample size of 200 per country. The survey length was approximately 20 minutes.

The total sample from the survey includes:

- 2,800 healthcare leaders (defined as a C-suite or senior executive working in a hospital, medical practice, imaging center/office-based lab, or urgent care facility who is a final decision maker or has influence in making decisions).

Below is the specific sample size, estimated margin of error at the 95% confidence level, and interviewing methodology used for each country.

	Unweighted sample size (N=)	Estimated margin of error (percentage points)	Interview methodology
Australia	200	+/- 7.5	Online and telephone
Brazil	200	+/- 6.5	Online and telephone
China	200	+/- 7.5	Online and telephone
France	200	+/- 6.5	Online and telephone
Germany	200	+/- 7.0	Online and telephone
India	200	+/- 5.5	Online and telephone
Italy	200	+/- 7.0	Online and telephone
Netherlands	200	+/- 6.0	Online and telephone
Poland	200	+/- 6.5	Online and telephone
Russia	200	+/- 7.5	Online and telephone
Saudi Arabia	200	+/- 6.5	Online and telephone
Singapore	200	+/- 8.5	Online and telephone
South Africa	200	+/- 6.5	Online and telephone
United States	200	+/- 7.0	Online and telephone

Question localizations

In some instances, certain questions needed to be adjusted slightly for relevance within specific countries. Care was taken to ensure the meaning of the question remained as close to the original, English version, as possible.

2021 qualitative interviews methodology

To provide context and key quotes to the quantitative data, the research was supplemented with 30-minute interviews among healthcare leaders in their native language, which was conducted from February 25, 2021 – March 12, 2021. There were 20 participants, four from each of the following markets: China, Germany, India, the Netherlands and the United States. These interviews were conducted in participation with Heart and Mind Strategies.

*Estimated margin of error is the margin of error that would be associated with a sample of this size for the full healthcare leader population in each country. However, this is estimated since robust data is not available on the number of healthcare leaders in each country surveyed

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The Future Health Index is commissioned by Philips.

To see the full report visit
www.philips.com/futurehealthindex-2021

The Future Health Index 2021 report examines the experiences of almost 3,000 healthcare leaders and their expectations for the future. The research for the Future Health Index 2021 report was conducted in 14 countries (Australia, Brazil, China, France, Germany, India, Italy, the Netherlands, Poland, Russia, Saudi Arabia, Singapore, South Africa and the United States). The study combines a quantitative survey and qualitative interviews conducted from December 2020 – March 2021.

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