

Europe

# Taking healthcare everywhere

Addressing staff shortages and patient needs  
with new care delivery models





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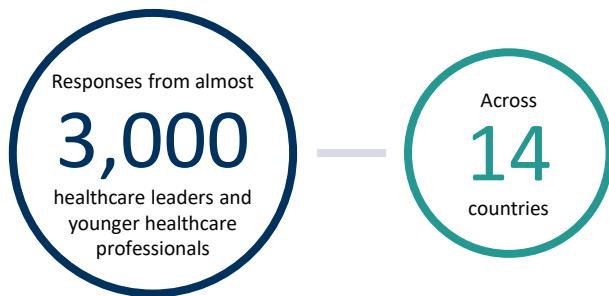
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## Research premise

This is the largest global survey of its kind, analyzing the priorities and perspectives of healthcare leaders and younger healthcare professionals.

The Future Health Index – now in its eighth year – is based on proprietary research conducted in 14 countries.

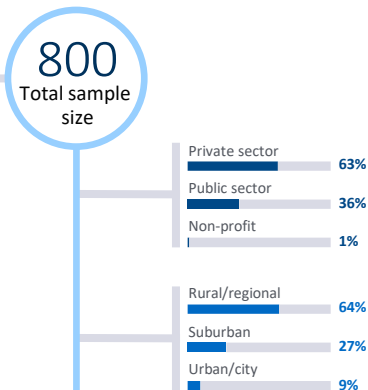
In 2023, the Future Health Index explores how healthcare leaders and younger healthcare professionals view the role of new care delivery models, which integrate physical and virtual care within and beyond hospital walls.



### Countries included in the research

Germany  
Italy  
Netherlands  
Poland  
Australia  
Brazil  
China  
India  
Indonesia  
Japan  
Saudi Arabia  
Singapore  
South Africa  
United States

### Details of the 2023 Europe report



## Foreword

**Fast tracked by the pandemic, the past three years have given us a glimpse of the future of healthcare delivery: one that extends beyond hospital walls into the home and the community, with digital technology connecting care across settings. There is no going back now. This year's Future Health Index shows how healthcare leaders and younger healthcare professionals are aligned in their vision to innovate new care delivery models that meet patients where they are.**

Healthcare leaders around the world are challenged with maintaining quality care through staff shortages, while financial pressures add to the strain. Meanwhile, patient expectations are different from what they were pre-pandemic. As digital transformation has continued to accelerate in every aspect of our lives, from how we buy to how we work and learn, our best and most convenient experience anywhere is now what we expect *everywhere* – including in healthcare.

Healthcare leaders recognize that optimizing current ways of working will only get them so far. A new paradigm of care delivery is needed. The 2023 Future Health Index report offers clues to what that will look like. Investments in AI and virtual care continue to be on the rise, showing commitment from healthcare leaders to lean into the potential of digital technology to improve efficiencies, experiences, and outcomes. At the same time, they are looking to expand care delivery into lower-cost settings outside the hospital. Or, as I like to say, we are moving to a future of 'your care, your way', where patients will benefit from a wider range of virtual and in-person access points.

Younger healthcare professionals welcome this shift. In fact, as this year's survey findings show, they are asking for it. Younger healthcare professionals are keen to be at the forefront of digital innovation. Just like healthcare leaders, they envision a more personalized and connected approach to healthcare, orchestrated around the patient's needs, and with digital technologies such as AI supporting them in their day-to-day work.

But both groups also realize they cannot get there alone. Even more so than in previous Future Health Index reports, partnerships emerged as a key theme this year. Both healthcare leaders and younger healthcare professionals say that closer collaboration between providers is needed to deliver integrated patient care across settings. They also see a key role for data/IT providers and health technology companies to help liberate data and turn it into meaningful insights when and where they are needed. And finally, they are turning to partners for help in improving environmental sustainability – an area where healthcare has much to gain.

I invite you to explore the survey findings in more detail in this report and reflect on what they mean for your organization. Where will you take healthcare next? I hope that, as you set out on that journey, you find inspiration from both current and future healthcare leaders.



*When I think of the future of healthcare delivery, I think of 'your care, your way'.*

**Shez Partovi**  
Chief Innovation & Strategy Officer and  
Business Leader Enterprise Informatics, Philips

## Key findings at a glance



Three main themes emerge from the 2023 Future Health Index, showing how healthcare systems are innovating care delivery to meet evolving patient needs with increasingly strained resources. Each of these themes is explored in more detail in the following chapters.

### Chapter 1

Embracing innovation and digitization to transform care

Faced with acute workforce shortages and growing financial pressures, healthcare leaders in Europe are seeking to streamline processes for improved efficiencies. They are ramping up their investments in automation and AI to alleviate pressure on staff and to ultimately empower them with more predictive insights for clinical decision support. This is welcomed by younger healthcare professionals, who are also eager to embrace new digital technology.



### Chapter 2

Enhancing the patient experience

Healthcare leaders and younger healthcare professionals in the region share a common vision for a technology-driven healthcare system that meets patients where they are. Virtual care continues to be on the rise, expanding the reach of care beyond hospital walls. At the same time, both surveyed groups also see an important role for partnerships in delivering new types of care.



### Chapter 3

Decarbonizing healthcare and the race to net zero

Industry leaders in Europe are acutely aware of the need to implement environmental measures and they see new care delivery models as playing an important role in reducing emissions. However, they face obstacles such as the inability to measure success and the lack of standardization in the healthcare system. Fortunately, they have also identified several solutions to these barriers including creating business cases and working with partners and peers.



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## Embracing innovation and digitization to transform care

Healthcare leaders across Europe continue to face workforce shortages and ongoing financial challenges.

To address these issues, many organizations are streamlining patient and administrative processes, reducing costs and utilizing digital healthcare tools, including virtual care, AI and automation.

Embracing innovation is key to establishing new models of care, especially for out-of-hospital settings. Interest in embedding AI in healthcare is on the rise. Healthcare leaders are increasing investment in AI to enhance care delivery, while many younger healthcare professionals consider AI a key factor in choosing where to work.

## Technology solutions to alleviate staff shortages

### Universal workforce challenges

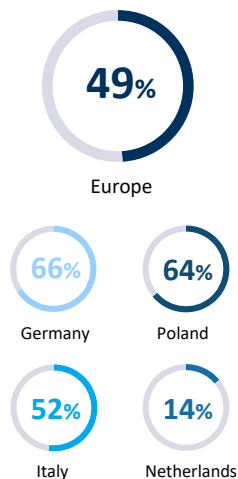
Healthcare leaders across Europe face acute workforce shortages. Nearly half (49%) are using or planning to use digital health technology to reduce the impact of these workforce shortages.

However, this figure varies significantly from country to country: leaders in Germany (66%), Poland (64%) and Italy (52%) are far more likely to choose this route than those in the Netherlands (14%) (see Figure 1).

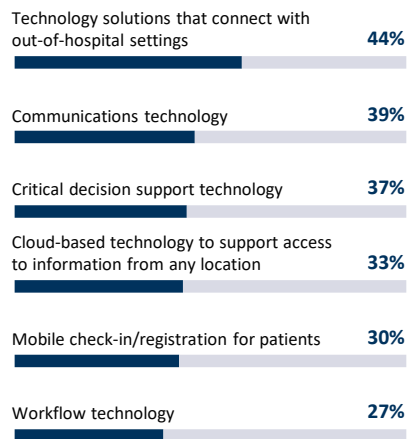
The majority of Europe-based leaders using or planning to utilize digital health technology to address workforce shortages, would use technology solutions that connect with out-of-hospital settings (44%) to do so. (see Figure 2).

In addition, 39% of leaders are using or planning to use communications technology, while 37% cite critical decision support technology, such as predictive analytics and AI in clinical settings.

**Figure 1: Healthcare leaders who are using or planning to use digital health technology to reduce the impact of workforce shortages**



**Figure 2: Technology solutions used by healthcare leaders across Europe to reduce the impact of workforce shortages**



### Clinical Decision Support in action

Technology to automate workflows can be one of the most effective ways to alleviate pressure on healthcare professionals and improve efficiency.

During the height of the Covid-19 pandemic, the IRCCS Istituto Clinico Humanitas in Italy reimaged its intensive care unit using clinical decision support software, linked to the Humanitas Hospital information system<sup>1</sup>. Thanks to insights generated by the software, a completely new workflow was created, resulting in better use of the ward staff's skills and time, and better patient outcomes.

## Exploring new pathways for financial stability

### Costs and challenges piling up

Along with staff shortages, healthcare leaders are managing extreme financial pressures. Almost all healthcare leaders across Europe (96%) say their hospital or healthcare facility is facing financial pressures, with most (86%) taking action to address these issues. The most likely strategy, cited by almost half of healthcare leaders (47%), is building new revenue streams, while one in five are cutting costs (20%) or exploring new ways of financing (19%).

### Multiple pathways for action

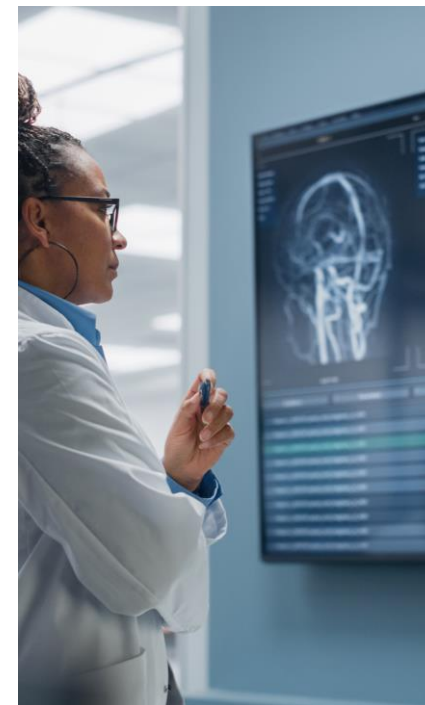
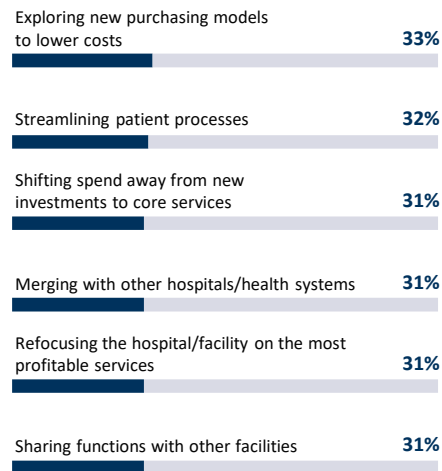
Where a healthcare leader's hospital is addressing financial pressures, a broad range of solutions are being used (see Figure 3).

The solutions they most commonly cite are exploring new purchasing models to lower costs, including the formation of buying groups (33%) and streamlining patient processes (32%), such as automating appointment booking.

Beyond that, they equally select a variety of options (all 31%): shifting spend away from new investments to core services; merging with other hospitals or health systems; refocusing the hospital or facility on the most profitable services; and sharing functions, for example, administrative or IT, with other facilities.

Notably, and likely in response to critical staff shortages, healthcare leaders across Europe are not inclined to pause recruitment to tackle financial challenges. Just 19% are taking this measure, although this is higher among German leaders (28%).

Figure 3: Healthcare leaders are using a range of solutions to help tackle financial pressures





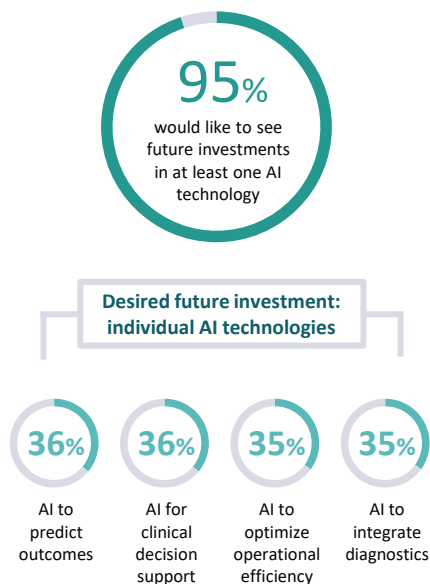
## Digital innovation essential for younger healthcare professionals

### AI is a key driver of workplace satisfaction

The importance of AI to younger healthcare professionals is clear. Nearly all (95%) would like to see future investments at their hospital or healthcare facility in at least one AI technology, which is higher than the global average (87%) (see Figure 4). Meanwhile, 40% believe AI to integrate diagnostics is among the technologies that will have the biggest impact in improving patient care in the next three years, higher than their colleagues in leadership (30%).

Being at the forefront of AI in healthcare is also an important consideration for half (51%) of younger healthcare professionals in Europe when choosing a future workplace. In fact, in the Netherlands (69%), Italy (57%) and Germany (34%) younger healthcare professionals were most likely to select being at the forefront of AI as an important consideration in a future workplace. In Poland, AI (43%) came a close second to a culture of collaboration (44%).

Figure 4: AI technologies younger healthcare professionals would like their hospital to invest in three years from now



### Saving time through technology

Younger healthcare professionals in Europe look to time-saving technology and usable data to enhance their daily working experience.

In the Netherlands, younger healthcare professionals were most likely to choose AI to optimize operational efficiency, such as automating required documentation and scheduling patients (30%), as the technology that would most improve their work satisfaction.

In Germany and Italy, portability of healthcare data between hospitals or practices was among the top selected answers for both countries, alongside AI to integrate diagnostics and healthcare professional-to-healthcare professional virtual care for Italy.

In Poland, younger healthcare professionals most frequently opted for chatbots to provide patients with answers to basic medical questions via automation (32%). These answers show the variety of ways technology can add value in the workplace for younger clinicians.





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## Enhancing the patient experience

Healthcare leaders across Europe recognize the role of technology and innovation in improving care. They see virtual care having a major impact on healthcare systems and are consequently either investing or planning to invest in this form of care. Both younger healthcare professionals and healthcare leaders see the value in diverse partnerships to improve patient outcomes.

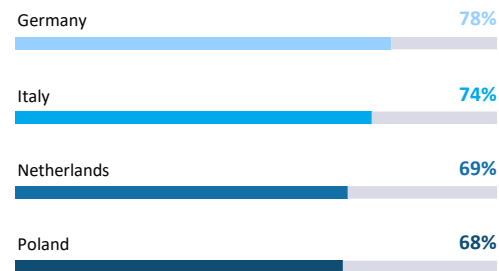
## Extending care beyond hospital walls

### Delivering new forms of healthcare

Accelerated by the pandemic, the need to deliver care in a different way has transformed healthcare systems across Europe. This is especially the case in countries such as Italy, which is using funds from the EU Recovery and Resilience Facility as an opportunity to digitize its national healthcare service<sup>2</sup>.

Healthcare leaders and younger healthcare professionals across Europe are committed to virtual care, whether healthcare professional-to-professional or professional-to-patient. Almost three-quarters (72%) say it is a technology that has either had the biggest impact in improving patient care or will have in three years' time.

**Figure 5: Healthcare leaders and younger healthcare professionals combined who say virtual care has had or will have the biggest impact in improving patient care**



However, healthcare leaders across Europe are less likely than their global peers to say their hospital or facility provides patient care services outside of the main hospital. Globally, 42% of healthcare leaders say acute care at home provided virtually or through in-person visits is available at their facility, while 31% say the same in Europe. Similarly, 41% of healthcare leaders globally offer intensive or critical care supported virtually, with healthcare leaders across Europe again lower at 35%.

### A greater appetite for investment

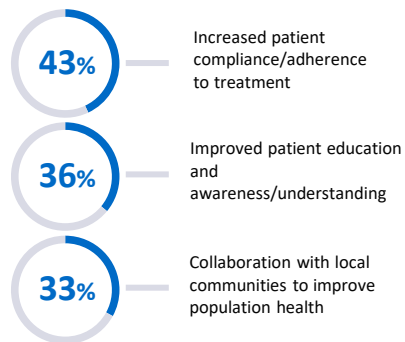
Aligned to the World Health Organization's United Action for Better Health in Europe program, which includes a focus on telemedicine<sup>3</sup>, the interest of healthcare leaders across Europe in virtual care is expected to grow even more in the future. The number planning to start or continue investment in virtual care over the next three years is 43% — higher than the global average (32%). German leaders are the most likely to be investing (54%), followed by Polish leaders (44%), and their counterparts in the Netherlands (40%) and Italy (35%).

## More effective, accessible and convenient care

### Seeing the benefits for patients

Healthcare leaders and younger healthcare professionals across Europe are aligned in their views on the key benefits of new ways to deliver care (see Figure 6). Their top picks of increased patient compliance (43%) and improved patient education (36%) are patient focused.

**Figure 6: Top beneficial outcomes of new care delivery models as cited by healthcare leaders and younger healthcare professionals across Europe**



### Delivering care that makes a difference

Healthcare leaders and younger healthcare professionals across Europe are optimistic about new care delivery models improving the patient experience. Around half of respondents believe it likely that new care delivery models will be able to deliver more effective treatment (51%), improved patient safety (50%) and faster access to diagnosis or care (48%). More choice for patients on how their healthcare is delivered, an improved patient experience and better care for more patients (all 47%) are also considered likely outcomes.



### Resources are needed to address challenges

A recent report from the Organisation for Economic Co-operation and Development called for investments in health systems across Europe to protect health, strengthen health systems, and empower healthcare professionals<sup>4</sup>.

To reduce the burden on traditional care settings, many healthcare leaders believe the sector needs to offer distributed service models, enabled by telemedicine and remote-managed services<sup>5</sup>.

Healthcare leaders in Europe now face the challenge of alleviating pressure on staff and addressing workflow shortages, while establishing these new models for care.

Throughout Europe, national and regional authorities and purchasing agencies do not have the digital capabilities, experience or resources to meet the requirements of the EU's Recovery and Resilience Facility program<sup>6</sup>.

## Partnering for better, more integrated care

### Working in partnership

Partnerships with external organizations have a role to play in expanding access to care. Almost half of younger healthcare professionals in Europe (44%) say they would feel more empowered to improve patient care if there was closer collaboration with other organizations involved in care delivery (e.g., social services, nutritionists, occupational therapists).

At the same time, both healthcare leaders and younger healthcare professionals alike see collaboration with a range of external organizations as increasingly critical to delivering more integrated care to patients. Nearly one in three healthcare leaders (29%) and a similar number of younger healthcare professionals (34%) in Europe also stated that building partnerships outside of the healthcare system is an action they are taking – or would like to see taken – to ensure new ways to deliver care improve patient outcomes.

### A variety of partners

The good news is that partnerships are already established across the region, and the type of organizations involved is varied. External organizations that healthcare leaders are currently working with include health technology companies (28%), educational institutions, whether medical or non-medical (25%), community centers (23%), and retailers or pharmacies (22%).

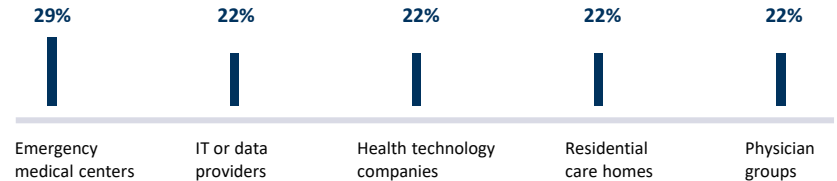
Unsurprisingly, there are differences among individual countries, for example a higher number of healthcare leaders in Poland partner with health technology companies (46%) than other countries in Europe.

Looking to the future, 29% of healthcare leaders would like to partner with emergency medical centers (see Figure 7), a result driven by Italy and Poland (both 34%). Data or IT providers and health technology companies (both 22%) follow in popularity.

When younger healthcare professionals were asked which external organizations they think their hospital should partner with in the future, 27% of respondents in Europe opted for emergency medical centers, while other hospitals and clinics (25%), physician groups

(24%) and retailers or pharmacies (24%) were also among the top selected options. These answers reflect younger healthcare professionals' desire to collaborate with other organizations in care delivery and broaden the responsibility of care outside the hospital walls.

**Figure 7: External organizations healthcare leaders plan to partner with three years from now**





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## Decarbonizing healthcare and the race to net zero

The European Union is playing a leading role in driving sustainability in healthcare to help deliver a greener and more resilient future. Industry leaders in the region are acutely aware of the need to implement environmental measures that will help them achieve their sustainability goals.

However, this is not currently their top consideration because of other, more urgent priorities. They also face obstacles such as the inability to measure success and the lack of standardization in the healthcare system.

They see new care delivery models as central to reducing emissions and making healthcare more sustainable.

## Environmental sustainability remains a priority in Europe

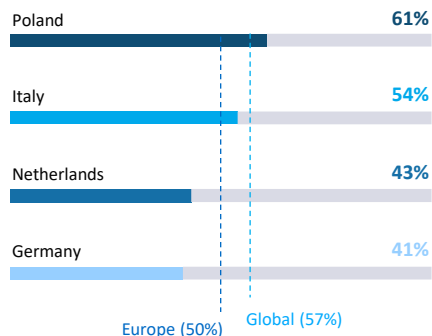
### New ways to deliver care are more sustainable

The EU is at the forefront of the drive to build more sustainable healthcare systems<sup>7</sup>, with several major initiatives in the area, including the European Green Deal. Significantly, one third of the €1.8 trillion investments from the NextGenerationEU recovery plan, along with contributions from the EU's overall seven-year budget, will finance the European Green Deal to build a greener, and more resilient future<sup>8</sup>.

Europe's healthcare leaders and younger healthcare professionals are broadly aligned with this view. Half (50%) agree that new ways to deliver care are more environmentally friendly or sustainable, slightly less than the global figure of 57% (see Figure 8).

When asked what they considered important when choosing a hospital/facility to work in, just over a quarter (27%) of younger healthcare professionals in Europe selected strong policies on sustainability.

Figure 8: Respondents agree new ways to deliver care are more environmentally friendly and sustainable



### The role of suppliers in a greener future for healthcare

There is now a concerted effort from healthcare systems to reduce the estimated 4.4% of global emissions that the sector emits<sup>9</sup>. Significant reductions can be achieved by looking at supply chains<sup>10</sup>.

Supplier behavior is fundamental in achieving reductions in emissions from healthcare since the supply chain contributes a significant proportion of the overall emissions. For example, 62% of National Health Service emissions in the United Kingdom come from the supply chain in the production, transportation and disposal of goods and services<sup>11</sup>. Emissions from suppliers and their supply chains can be actively measured and reported as part of the drive to achieve net-zero healthcare.

## Leaders across Europe are working to overcome challenges to decarbonizing healthcare

### Hurdles to deliver greener healthcare solutions

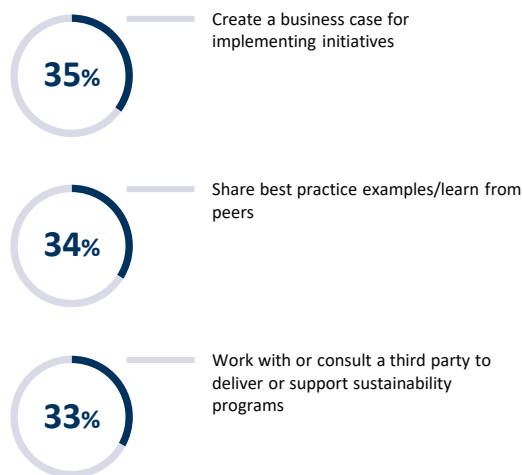
For leaders with a desire to make their healthcare systems greener, successful implementation of sustainability initiatives is often out of reach. All healthcare leaders across Europe (>99%) say their hospital or facility is implementing some form of environmental sustainability initiative, but they admit they face challenges in doing so.

The challenge most identified by healthcare leaders (36%) in Europe is that environmental sustainability initiatives are a lower priority than other goals. A similar number cite the inability to measure improvements and success (35%), as well as a lack of standardization across the healthcare industry (34%).

### Finding solutions to tackle sustainability challenges

Healthcare leaders across Europe are seeking ways to overcome the obstacles to delivering a greener care system (see Figure 9). Several of their solutions highlight a collaborative approach: sharing best practice and learning from peers (34%) and consulting with third parties (33%). Rennes University Hospital is one example of a health system doing this. To accelerate their sustainability initiatives, clinical and operational teams partnered with experts to simultaneously reduce their carbon footprint and improve patient care<sup>12</sup>.

Figure 9: How healthcare leaders are planning to overcome challenges implementing environmental sustainability initiatives



### Working in partnership to reduce carbon emissions

Despite the barriers they face, hospitals and other healthcare providers across Europe are striving to reduce their carbon footprint.

One example is the Portuguese biomedical research and clinical care provider, Champalimaud Foundation, which has set a goal of halving the carbon footprint resulting from its use of diagnostic and interventional imaging equipment by 2028<sup>13</sup>.

Working with industry partners, it is using a set of practical, scalable measures and innovations, including equipment upgrades, lifetime extensions, process digitization and renewable electricity sourcing to upgrade its imaging infrastructure.

These measures are designed to help drive the quality and efficiency of care delivery, while also realizing more sustainable healthcare. As a result, many more patients are expected to be able to benefit from the hospital's diagnostic healthcare services.



## Working across the healthcare ecosystem to reduce its environmental impact

### Creating environmental standards

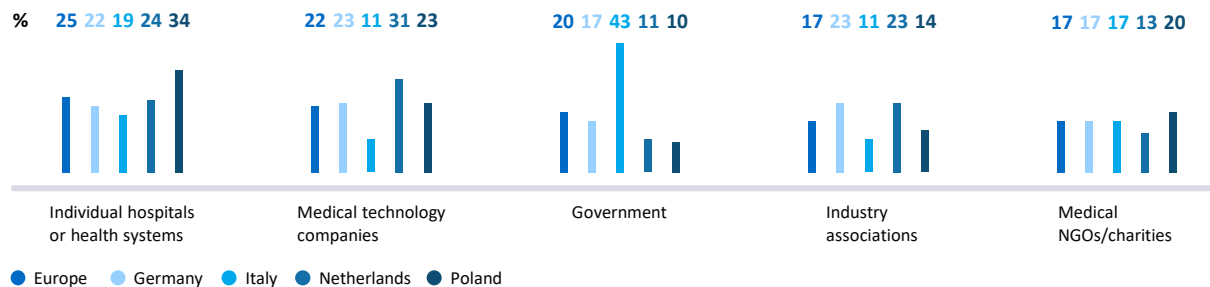
Healthcare leaders and younger healthcare professionals across Europe think that responsibility for creating environmental sustainability standards in healthcare is shared across systems.

Exploring who *should* be most responsible through a European lens, both groups combined ranked individual hospitals or health systems (25%) first, followed by medical technology companies (22%) and government (20%) (see Figure 10).

However, the European lens obscures sharp differences between the markets. For example, 43% of leaders and younger healthcare professionals in Italy ranked the Government first in terms of who should be responsible, far higher than the other markets.

These differences are in contrast to European Union policy on carbon emissions. Under its 2050 carbon neutral target, emissions reduction is a cross-border priority to be tackled through unified policies and standards, best practice sharing and international collaboration<sup>14</sup>.

Figure 10: Organization that should be most responsible for creating environmental sustainability standards in healthcare, according to respondents across Europe





# Conclusion

## Building a healthcare ecosystem fit for the future

Healthcare professionals across Europe share a vision for the future: one in which healthcare is delivered in more connected, convenient, and sustainable ways across care settings, enabled by digital technology.

As this year's Future Health Index shows, clinical and economic evidence of the benefits of new care delivery models will be an essential driver of the future of healthcare in Europe.

Small-scale pilots conducted in partnership can help generate that evidence, showing how digital innovations can improve patient health outcomes as well as the patient and staff experience. Similarly, being able to measure progress on environmental sustainability goals will help propel carbon reduction initiatives in healthcare.

Addressing the pressures on healthcare systems is key for enabling new care delivery models to support people living in Europe.

Embracing technology such as digitization, AI and Predictive analytics will help offset some of the pressures caused by staff shortages and may also support the creation of new revenue streams, which healthcare professionals across Europe find preferable to cutting costs.

Collaboration also has an important role to play. Healthcare providers are turning to health technology companies and data or IT providers to alleviate pressure on staff with automation, AI, and data-driven insights at the point of care.

Nurturing a wider network of collaborative partners can help develop and implement the common standards and incentives that are needed to reduce variation and promote harmonization across the healthcare ecosystem – whether it is to increase interoperability and facilitate the secure flow of data across care settings, or to support sustainable innovations and accelerate the decarbonization of healthcare.

Ultimately, that's how both patients and the planet will benefit from new care delivery models to support people living across Europe - and beyond.





# Appendices

# Research methodology

## Research overview and objectives

Commencing in 2016, Royal Philips has conducted original research every year with the goal of understanding the ways various countries around the world are addressing global health challenges and how they are improving and expanding their ability to care for their communities. Building and expanding on previous years, the Future Health Index 2023 focuses on addressing staff shortages and meeting patient needs with new care delivery models, speaking to both healthcare leaders and younger healthcare professionals\* globally.

The first Future Health Index, released in 2016, measured perceptions of how healthcare was experienced on both sides of the patient-professional divide. The following year, the research compared perceptions to the reality of health systems in each country that was studied. In 2018, the Future Health Index identified key challenges to the large-scale adoption of value-based healthcare and overall improved access, evaluating where connected care technology could speed up the transformation process. In 2019, the research explored the healthcare experience for both patients and healthcare professionals and how

technology was moving us to a new era of healthcare delivery transformation. In 2020, the Future Health Index examined the expectations and experiences of healthcare professionals aged under 40. In 2021, the Future Health Index report considered how healthcare leaders were meeting the continuing demands of the pandemic and what the new reality of healthcare post-crisis might look like. Last year's report, concentrated on the role of digital tools and connected care technology in meeting the complex needs of healthcare leaders.

In 2023, the Future Health Index looks to both healthcare leaders and younger healthcare professionals – those aged 40 and under – in 14 countries to quantify the experience and expectations of those in different roles and at various stages of their healthcare careers. It focuses on their perception of new care delivery models, which integrate physical and virtual care within and beyond hospital walls.

\* Healthcare leaders are C-suite or senior executive decision makers and influencers working in a hospital, medical practice, imaging center/office-based lab, ambulatory center or urgent care facility. Younger healthcare professionals are defined as those aged between 18 and 40 who have completed their first medical or nursing degree and are working as a healthcare professional in a clinician role (all specializations, except psychiatry and dental care).

## 2023 quantitative survey methodology

The quantitative study was executed by iResearch, a global business and consumer research services firm employing a mixed methodology of online and telephone surveying.

1,400 healthcare leaders and 1,400 younger healthcare professionals in 14 countries (Australia, Brazil, China\*, Germany, India, Indonesia, Italy, Japan, the Netherlands, Poland, Saudi Arabia, Singapore, South Africa and the United States) participated in a 15-20-minute survey in their native language from November 2022 – February 2023. 100 healthcare leaders and 100 younger healthcare professionals in each of the 14 countries completed the survey.

Below shows 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) Healthcare leaders	Estimated margin of error (percentage points) Younger healthcare professionals	Interview methodology
<b>Australia</b>	200	+/- 6.0	+/- 6.0	Online and telephone
<b>Brazil</b>	200	+/- 5.5	+/- 6.5	Online and telephone
<b>China</b>	200	+/- 6.5	+/- 7.2	Online and telephone
<b>Germany</b>	200	+/- 6.0	+/- 6.8	Online and telephone
<b>India</b>	200	+/- 5.2	+/- 6.0	Online and telephone
<b>Indonesia</b>	200	+/- 6.5	+/- 6.5	Online and telephone
<b>Italy</b>	200	+/- 6.5	+/- 6.5	Online and telephone
<b>Japan</b>	200	+/- 5.5	+/- 6.0	Online and telephone
<b>Netherlands</b>	200	+/- 6.2	+/- 6.4	Online and telephone
<b>Poland</b>	200	+/- 5.5	+/- 6.0	Online and telephone
<b>Saudi Arabia</b>	200	+/- 6.0	+/- 6.5	Online and telephone
<b>Singapore</b>	200	+/- 5.5	+/- 7.0	Online and telephone
<b>South Africa</b>	200	+/- 6.5	+/- 6.8	Online and telephone
<b>United States</b>	200	+/- 6.0	+/- 7.0	Online and telephone
<b>Total</b>	<b>2,800</b>		<b>+/- 6.23</b>	

## 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.

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

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

# Glossary of terms

## Ambulatory care center

Outpatient care centers (e.g., urgent care, walk-in clinics, 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.

## As-a-service models

Methods of delivering hardware, software and/or services on a subscription basis.

## Automation

The application of technology, programs, robotics or processes to support people in achieving outcomes more efficiently.

## Data

Used here to refer to a variety of clinical and/or operational information amassed from numerous sources including but not limited to digital health records (DHRs), medical imaging, payer records, wearables, medical devices, staff schedule and workflow management tools, etc.

## 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/healthcare facilities, and health or fitness tracker devices.

## Distributed care

Instead of having patients come into a central location, distributed care brings care to the patient. Increasingly, healthcare could be delivered through a decentralized network of ambulatory clinics, retail settings, and home-based monitoring, coaching, and treatment.

## Early adopters of digital health technology

Early adopters are defined as those who indicated that, compared to other hospitals or facilities, they are among the first to adopt an innovation or they adopt innovations before most others.

## Global non-governmental organizations

A nonprofit organization that operates independently of any government.

## Healthcare ecosystem

Describes people involved in care delivery (including patients, family members and caregivers), the locations of care and services provided, and how they work together to improve efficiencies and optimize experiences.

## Health technology companies

Companies that sell or provide medical equipment, wearables, health apps and other technology to healthcare organizations, patients, and the general public.

## 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.

## Healthcare professional

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

## Healthcare professional-to-healthcare professional virtual care

Virtual communication between healthcare professionals through sharing images, recommending treatment plans, etc.

## Healthcare professional-to-patient virtual care

Communication between healthcare professionals and their patients via video calls, patient portals, etc.

## Integrated care

Collaboration between the health and care services required by individuals to deliver care that meets patient needs in an efficient way.

## Interoperability

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

## Late adopters of digital health technology

Late adopters are defined as those who indicated that, compared to other hospitals or facilities, they adopt innovations later than most others.

## New ways to deliver care

This defines the way in which health services are provided. New ways to deliver care combine the needs of patients, caregivers and providers, to achieve the best possible care through integrated services within and beyond hospital walls.

## Out-of-hospital services/settings

Care centers such as ambulatory surgical centers, office-based labs, etc.

## Payer

A payer is a person, organization, or entity that pays for the care services administered by a healthcare provider. Payers are usually, but not always, commercial organizations like insurance companies; government or public sector bodies; or individuals.

## Predictive analytics

A branch of advanced analytics that makes predictions about future events, behaviors, and outcomes.

## 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.

## 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.

## Technology infrastructure

Foundational technology services, software, equipment, facilities and structures upon which the capabilities of nations, cities and organizations are built. This includes both IT infrastructure and traditional infrastructure that is sufficiently advanced such that it can be considered modern technology.

## Telehealth/virtual care

The distribution of health-related services and information via electronic information and telecommunication technologies.

## Workflows

A process involving a series of tasks performed by various people within and between work environments to deliver care. Accomplishing each task may require actions by one person, between people, or across organizations – and can occur sequentially or simultaneously.

## Younger healthcare professional

A healthcare professional working in a clinician role (all specializations, except psychiatry and dental care), under the age of 40.

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The Future Health Index 2023 report examines the experiences of almost 3,000 healthcare leaders and younger healthcare professionals and their expectations for the future. The research for the Future Health Index 2023 report was conducted in 14 countries (Australia, Brazil, China, Germany, India, Indonesia, Italy, Japan, Netherlands, Poland, Saudi Arabia, Singapore, South Africa and the United States). The study comprises a quantitative survey conducted from November 2022 – February 2023.

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