future health index 2019

Transforming **healthcare experiences**

Exploring the impact of **digital health technology** on healthcare professionals and patients

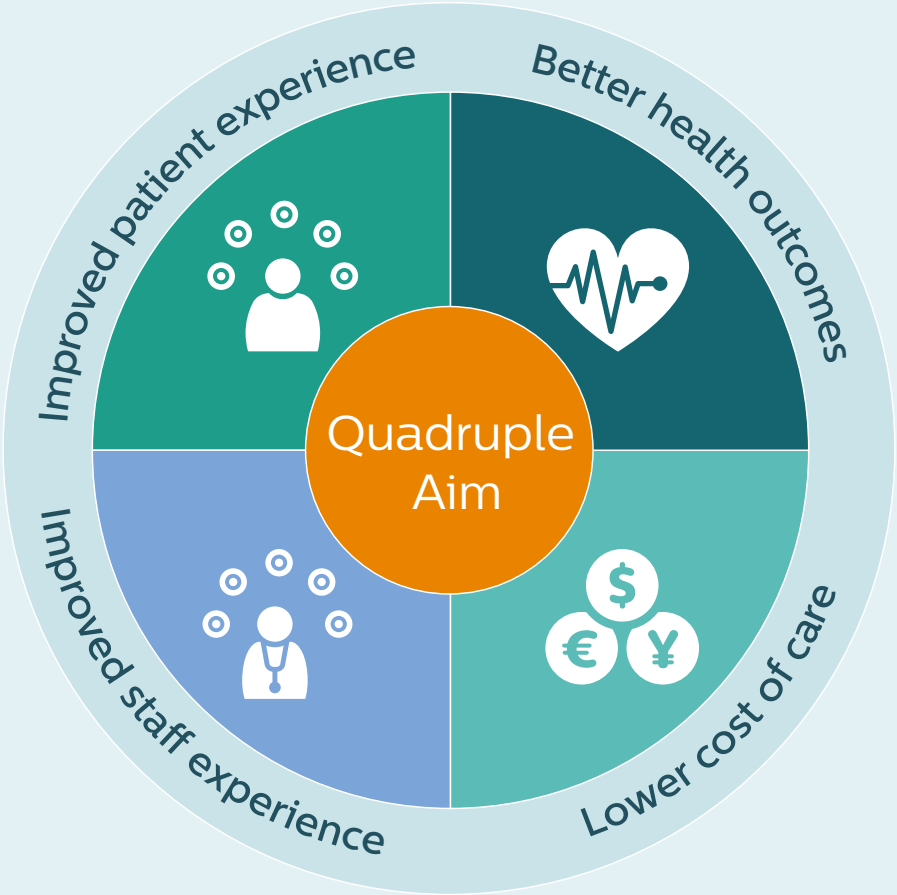The Future Health Index is commissioned by Philips

Contents

> "*Recognizing healthcare professionals is central to creating positive patient experiences, quality of care and ultimate outcomes. When combined with leading technology, streamlined processes and solid leadership, healthcare professionals are inspired to perform their best work and deliver valuable care.*"
>
> **Nancy Brown**
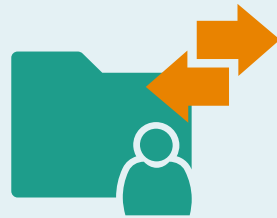> *CEO, American Heart Association*

Future Health Index 2019: research premise

The 2019 Future Health Index is based on primary research conducted across 15 countries. The research explores the **experiences of healthcare professionals and individuals[1]** – which includes both current and previous patients – in their health systems through two pillars of the **Quadruple Aim:** improved patient experience and improved staff experience.

Evolution and developments in digital health technology, such as digital health records (DHRs), telehealth and artificial intelligence (AI), offer benefits that could lead to **better health outcomes** and **reduced costs**, paving the way toward achieving the Quadruple Aim.

This year's research sets out to understand knowledge and appetite for using digital health technologies and how they **affect experiences of healthcare.** DHRs, telehealth and AI were selected due to their growing levels of adoption, as well as their potential to transform healthcare experiences.

Quadruple Aim

- Improved patient experience
- Better health outcomes
- Lower cost of care
- Improved staff experience

Digital health records can allow healthcare professionals to have access to more accurate, **up-to-date and complete information** about patients, while also allowing for more **coordinated care** across a patient's entire care journey

Telehealth can enable **24/7 consultation** and **care** regardless of geographical boundaries
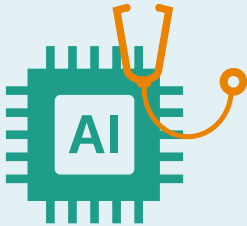
AI can assist healthcare professionals through **clinical decision** support and in offering **personalized treatment plans** to patients

1. Individuals are the general population of the 15 countries studied. They represent the population which healthcare systems ultimately serve, including current patients, previous patients, those with chronic conditions and those with limited prior interactions with the healthcare system.

Introduction

Healthcare systems vary from country to country, but they share a **common goal:**

Providing quality care with **improved experiences** for both patients and healthcare professionals

The challenge, of course, is to provide that care in ways that are as efficient and economical as they are effective.

Central to ensuring improved healthcare experiences will be the deployment of digital technologies to support cost–effective, value–based, connected healthcare. And yet, despite increasing adoption rates in some instances, use of these digital tools remains fragmented around the world. The impediments include inadequate access to technology, difficulty with integrating technology into healthcare professionals' ways of working and concerns about data privacy and security. These barriers are falling, though not as quickly as many of us would like.

Philips' fourth annual Future Health Index, based on a survey of **15,000 individuals** and more than **3,100 healthcare professionals** in **15 countries,** explores digital health technology's impact on the patient and healthcare professional experience.

By exploring experiences and attitudes, the Future Health Index suggests paths towards broader acceptance and adoption of connected healthcare, while offering insights into factors that may be impeding more widespread use of digital ways of working.

After analyzing the data, **three clear themes** have emerged:

Engaged and digitally enhanced healthcare professionals
The increasing number of healthcare professionals who use technologies like digital health records (DHRs) and telehealth report higher job satisfaction.

Empowered patients – access to data, more control
Individuals with access to their own health data are far more likely to engage with that information in ways that improve the quality of care and their overall experience.

Learning from forerunners
The experiences of digital health technology forerunners like China, Saudi Arabia, India and Russia provide lessons that all countries can learn from and apply to their own healthcare systems.

Conclusions: How can health systems best prepare themselves for continuous transformation?
Incorporating new technologies into healthcare is a journey, not a one–time event, enabling healthcare professionals and patients to adapt as needs evolve and new challenges arise.

Theme 1
Engaged and digitally enhanced healthcare professionals

Some healthcare professionals are adapting to **new ways of working** and beginning to recognize the **benefits of digital healthcare** for both themselves and their patients.

However, most countries are not seeing healthcare professionals harness the full potential and support of digital health technology in all aspects of their work. If we turn this situation around, healthcare professionals can become true advocates of these methods to both their patients and their peers.

Removing the remaining barriers to digital health technology use has the potential to enhance the work lives of more healthcare professionals.

"*The patient pathway for most diseases is still not clear for patients or healthcare professionals. Their design, together with the accelerated development of digital health records (DHRs), will greatly* **improve workflow** *within hospitals — and between primary care and hospital settings.*"

Rafael Bengoa
Co-Director, SI-Health; Vice Chairman of Advisory Group Horizon 20/20
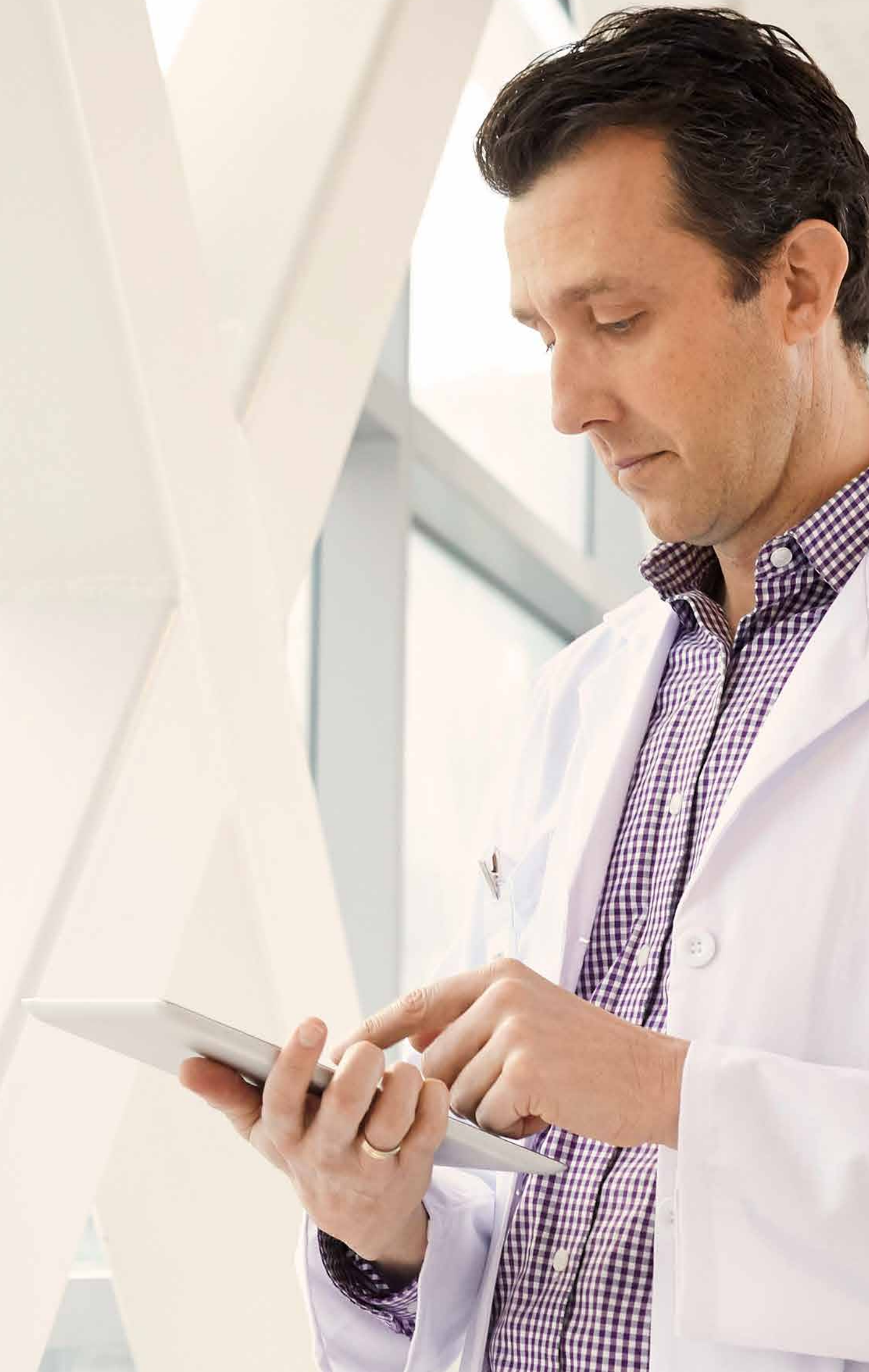
The **state of play**

Some digital health technologies have become **commonplace** for healthcare professionals

In 2019, we see that some **digital health technologies are being used widely** by healthcare professionals, while others are yet to be adopted at the same level.

There are **various examples** of healthcare professionals using digital health technology:

2019

80% of healthcare professionals have shared patient information electronically with other healthcare professionals **inside their health facility**

Base: Total healthcare professionals

32% of healthcare professionals have shared patient information electronically with other healthcare professionals **outside their health facility**

Base: Total healthcare professionals

76% of healthcare professionals are using **digital health records** (DHRs) in their hospital/practice

Base: Total healthcare professionals

61% currently **use telehealth** in their practice

Base: Total healthcare professionals

46% use **AI technologies** in their healthcare practice
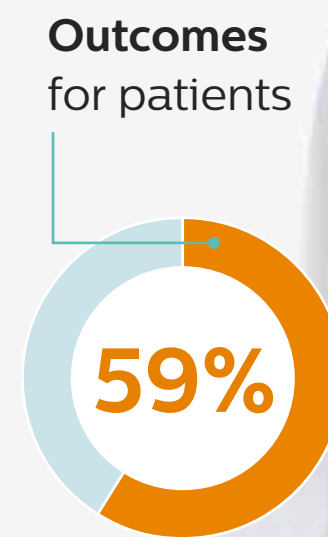
Base: Total healthcare professionals

Improved experiences through **digital technology support**

Many healthcare professionals feel **supported by digital health records** (DHRs), but the technology is not improving experiences for all

Many countries experience challenges with the implementation of digital health records and there is a common assumption that healthcare professionals feel these records can simply add administrative tasks to their workload. Our research indicates that healthcare professionals recognize how DHRs can **deliver on three of the four pillars** of the Quadruple Aim: better health outcomes, improved patient experience and improved staff experience. However, many healthcare professionals are still not seeing the benefits.

Healthcare professionals who use digital health records in their practice report that the technology had a **positive impact** on:

Quality of care
provided

69%

Satisfaction
for healthcare
professionals

64%

Outcomes
for patients

59%
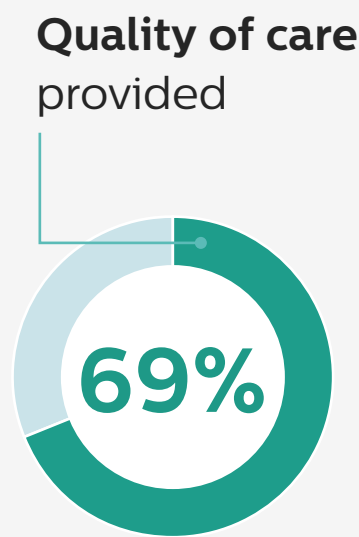
Base: Total healthcare professionals who currently use DHRs (n=2,268)
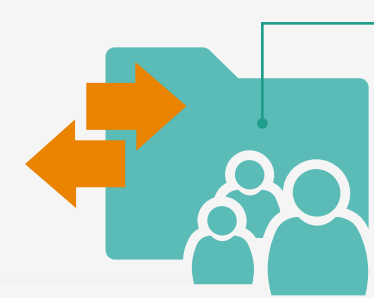
Additionally, **57%** of healthcare professionals report that, in the past five years, their experience has been positively impacted by having **access to patients' full medical history.**

Base: Total healthcare professionals

Telehealth: an untapped tool for healthcare professionals

Broader use of telehealth is needed to **unlock its benefits**

Barriers must be overcome for telehealth to deliver on its potential to improve healthcare access and availability.

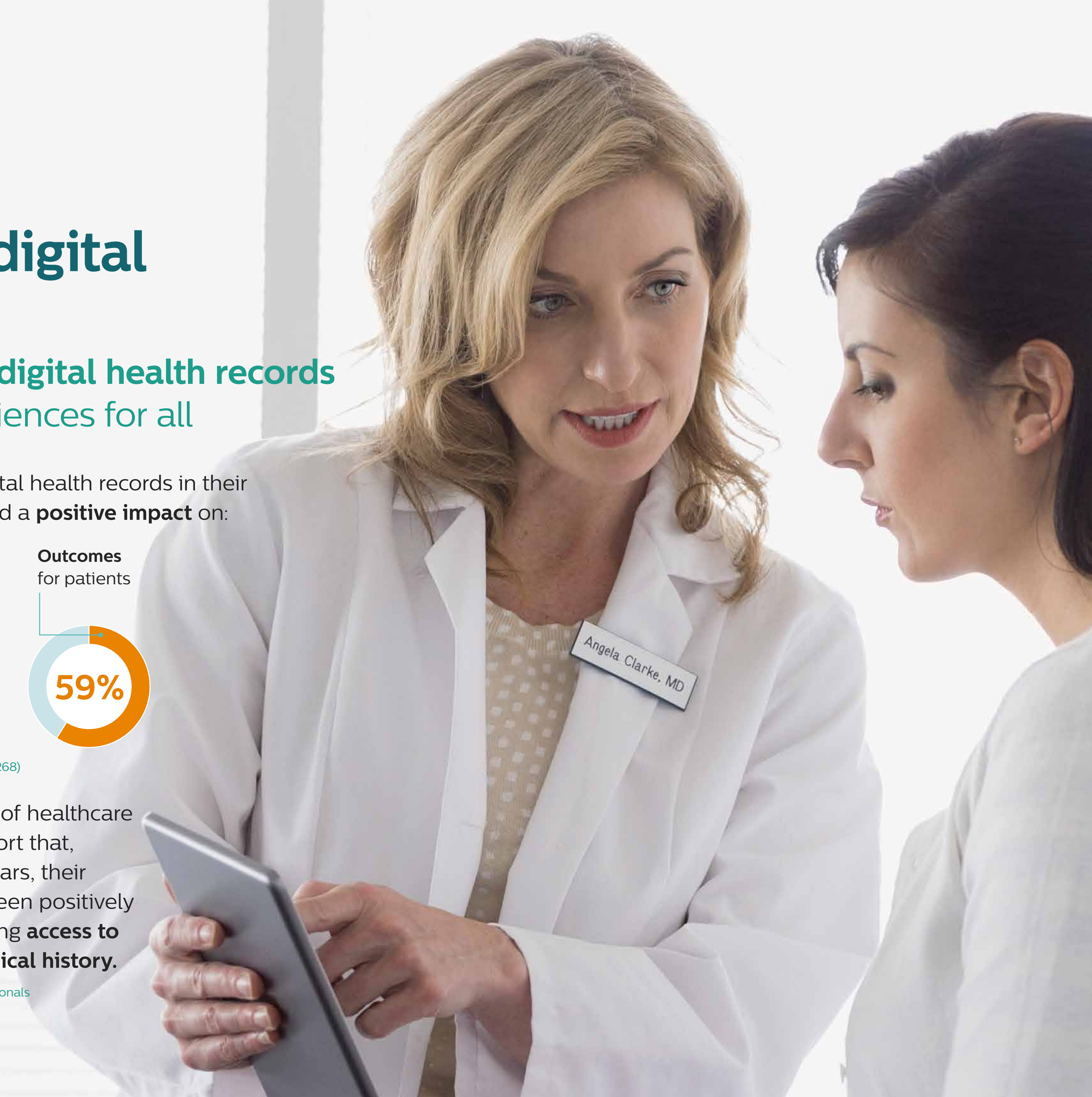Across the countries surveyed, telehealth has yet to become a common part of **healthcare professionals' day-to-day work**, with **39%** saying that they do not currently use telehealth in their practice or hospital.

Furthermore, low proportions of healthcare professionals report telehealth positively impacting the patient experience over the past five years.[1]

1 Telehealth: either healthcare professional-to-patient or between healthcare professionals

2 Open: those who prefer remote consultations via digital channels or have no preference

Few healthcare professionals say telehealth has **positively impacted patients' experiences** in the past five years:

33%

Healthcare professional-to-patient telehealth

31%

Healthcare professional-to-healthcare professional telehealth

Base: Total healthcare professionals
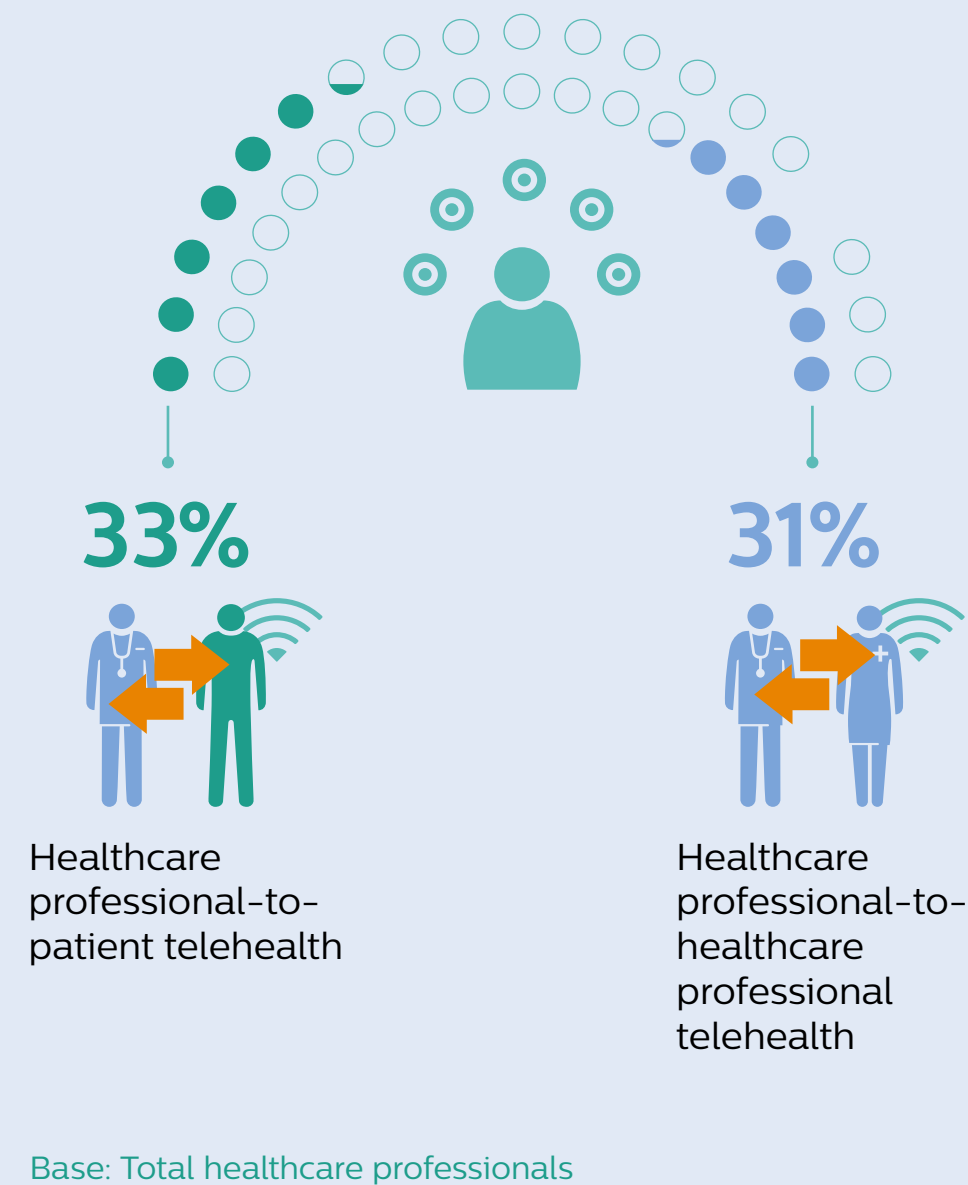
While a majority of individuals say healthcare in their country provides them with access to medical care when needed and **55%** say that healthcare professionals are available when they need care, there is still a large gap. Many are **open to using telehealth** to help close this gap.

Base: Total individuals

45%

of the general population is open[2] to **remote consultations** for non-urgent care

Base: Total individuals
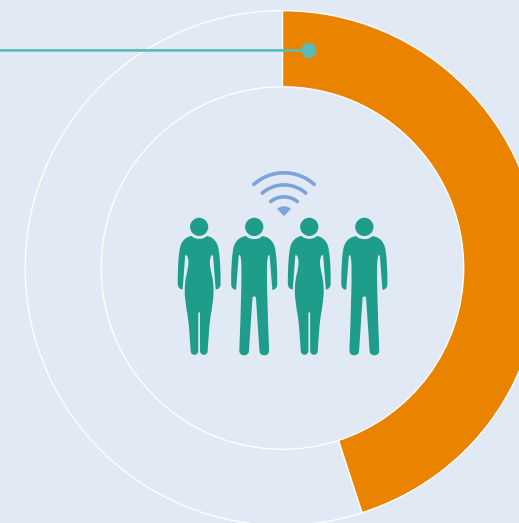
The **top reasons** individuals identify as discouraging them from seeing a healthcare professional when they need to are also areas where telehealth can be most effective. This demonstrates the potential positive impact of telehealth on the patient experience:

71% of individuals have been **discouraged** from visiting a healthcare professional when they had a medical reason to go

Base: Total individuals
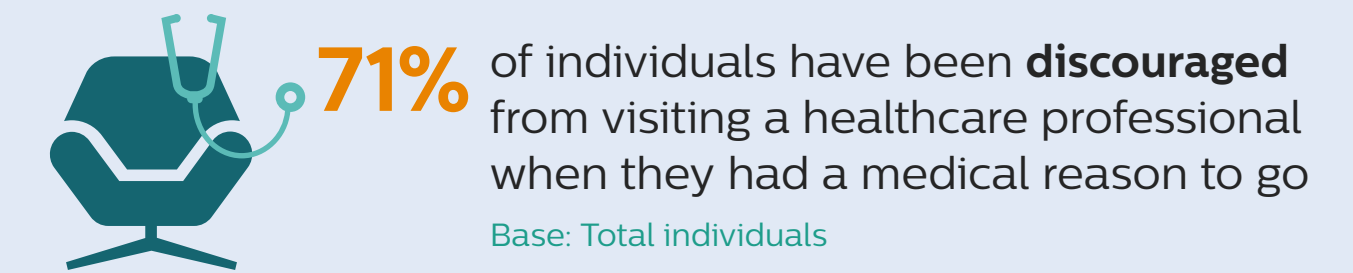
The **top-cited reasons** people have been **discouraged** from visiting a healthcare professional are:

Difficult/unable to **schedule an appointment**	**31%**
Lack of time to go	**27%**
General practitioner needed to **recommend to a specialist**	**25%**
Specialist **not available in their area**	**20%**

0   100%

Base: Those that have not visited a healthcare professional when they had a medical reason to go (n=10,711)
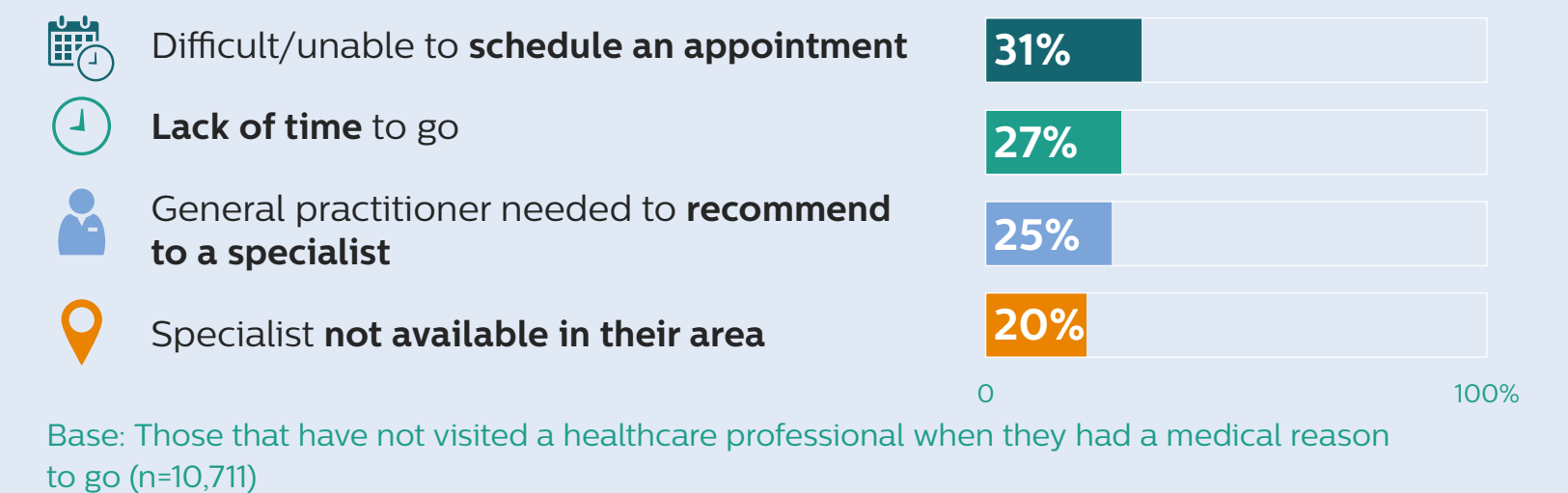
Healthcare professionals are gradually becoming **comfortable with AI**

Familiarity with using AI for workflow purposes could have a positive effect on **clinical implementation**

Healthcare professionals are most comfortable using artificial intelligence (AI) for administrative tasks, such as scheduling (**64%**). To help provide the highest quality care to patients, healthcare professionals' use of AI can move beyond these tasks into spaces where there is room for growth and a more profound impact on both the healthcare professional and patient experience, including diagnosis and treatment.

Percentage of healthcare professionals who are **comfortable with using AI** for the following:

Clinical

Workflow

45%
Actioning treatment plans

47%
Diagnosis

47%
Recommending treatment plans

59%
Flagging anomalies

63%
Patient monitoring

64%
Staffing and patient scheduling

Base: Total healthcare professionals
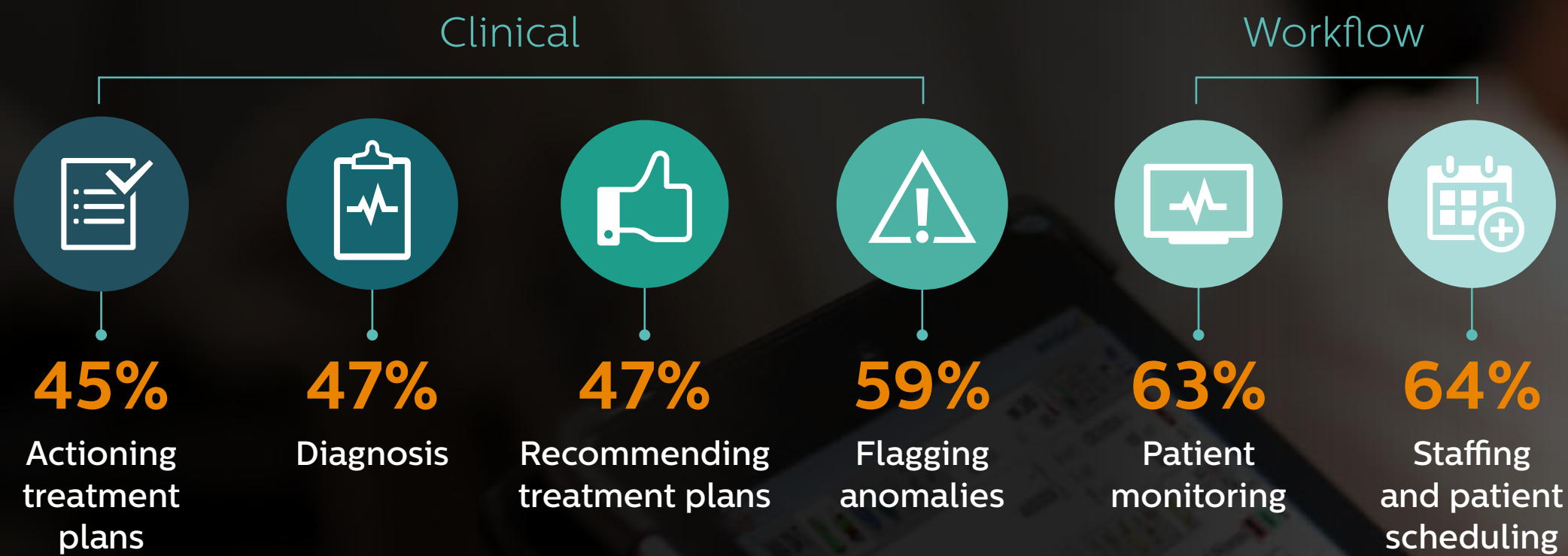
A 2018 Ipsos study looked at AI adoption across a range of business sectors. In workplaces that use AI-powered tools, more than two-thirds of the employees surveyed say the tools have already had a positive impact on their efficiency (75% cite improvements in their effectiveness, 75% in their results, and 74% in how their work is structured). They also note that AI has had a positive impact on the appeal of their work (70%), on their level of well-being at work (69%), and on the training courses made available to them (67%).

Source: https://www.ipsos.com/en/revolution–ai–work\

Patients can help healthcare professionals unlock the **power of data**

While a majority of healthcare professionals are **sharing data** within their hospital or health facility, limited sharing of patient information occurs outside the institution. If patients were encouraged to share data with healthcare professionals, particularly those who may be outside their primary healthcare facility, patients themselves would be making an important contribution to building data-rich healthcare systems.

"*I've never had a patient complain about too much access [to their health data]. They like the **ability to check reports themselves,** see the results and then contact their physician.*"

Christoph Wald
Chairman, Dept of Radiology at Lahey Hospital & Medical Center; Professor of Radiology, Tufts University Medical School

Only **one-third** of healthcare professionals **share patient information electronically** with other healthcare professionals outside their health facility
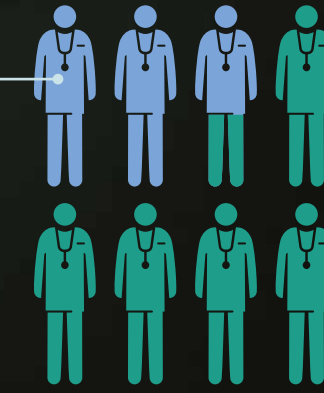
80% **Inside** their health facility

32% **Outside** their health facility

Base: Total healthcare professionals

The **top reasons** healthcare professionals say they do not share patient information with healthcare professionals inside and outside their health facility are:
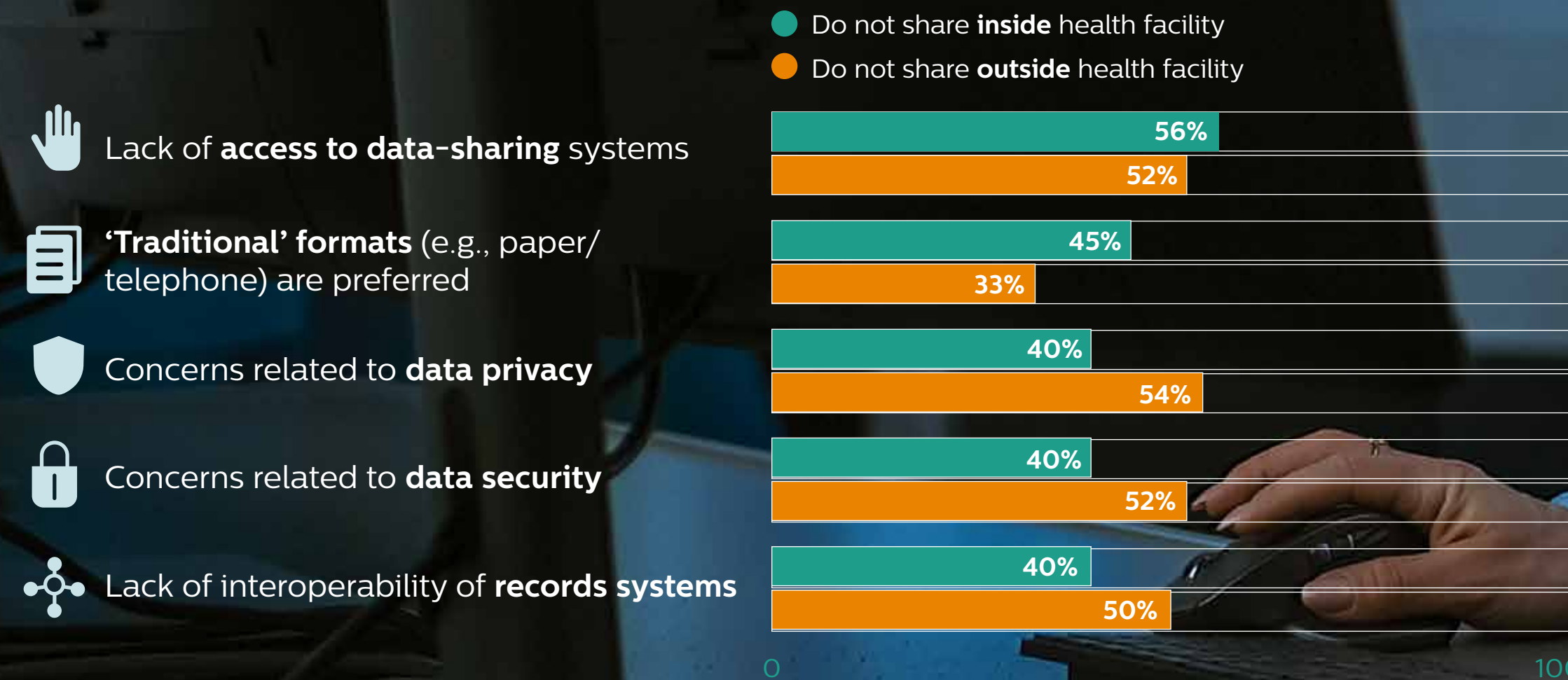
- ● Do not share **inside** health facility
- ● Do not share **outside** health facility

Lack of **access to data-sharing** systems
- 56%
- 52%

'Traditional' formats (e.g., paper/telephone) are preferred
- 45%
- 33%

Concerns related to **data privacy**
- 40%
- 54%

Concerns related to **data security**
- 40%
- 52%

Lack of interoperability of **records systems**
- 40%
- 50%

0   100%

Base: Total healthcare professionals who do not share patient information with other healthcare professionals inside their facility (n=563)
Base: Total healthcare professionals who do not share patient information with other healthcare professionals outside their facility (n=1,907)

Reciprocal data-sharing is not the norm, but can **improve experiences**

Our research shows that healthcare professionals are recommending patients use digital health technology to track their data, but that data is **rarely shared back digitally** to the healthcare professionals

Two-fifths of healthcare professionals often/always advise their patients to track these three key indicators of health via digital health technology or mobile health apps

Blood pressure **44%**

Physical activity **42%**

Weight **39%**

Base: Total healthcare professionals
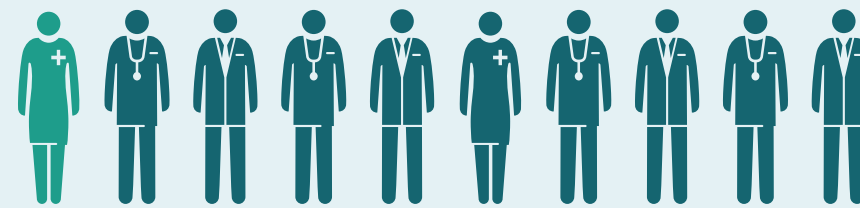
... yet only about **one-tenth** of healthcare professionals say most or all of their **patients have shared health data** from digital health technology or mobile health apps with them

15% Only when it relates to a **specific concern**

11% Most times/every time they **meet with me**

9% **Ongoing** (including between visits)
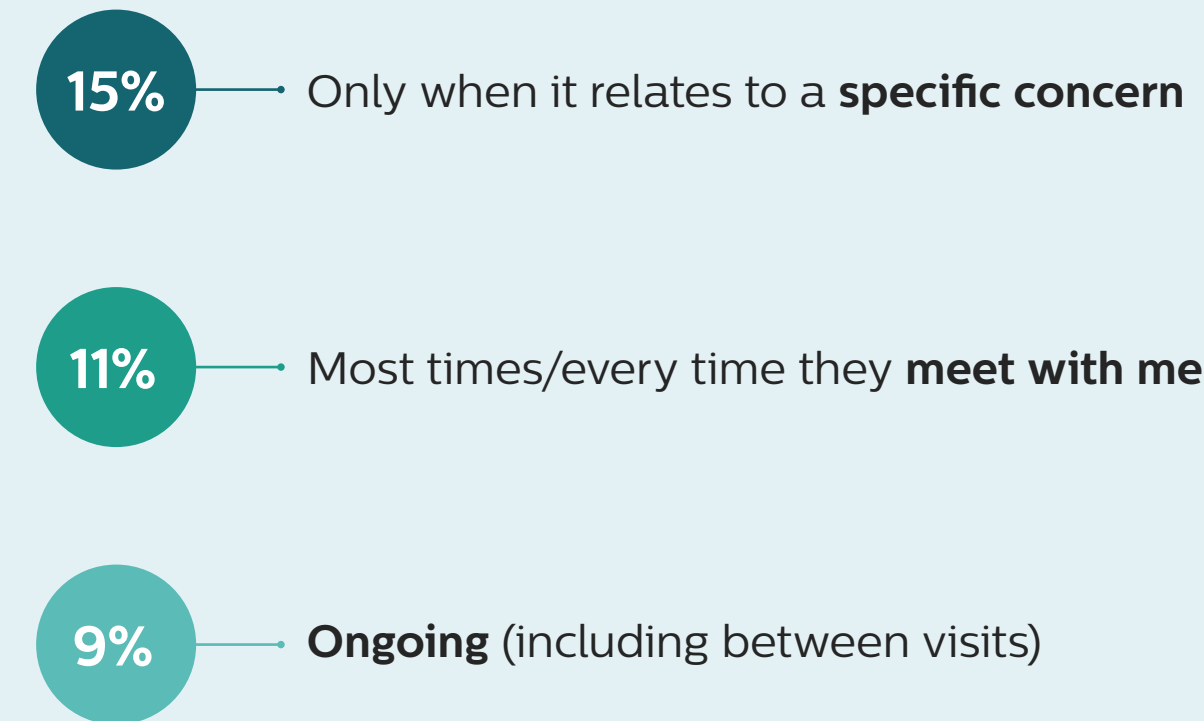
Base: Total healthcare professionals
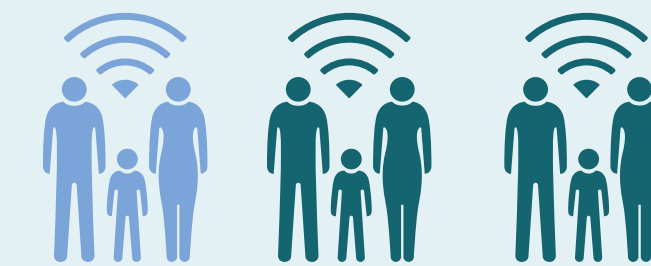
And just **one-third** **(36%)** of the general population who use digital health technology or mobile health apps to track indicators **regularly share data** with their healthcare professionals
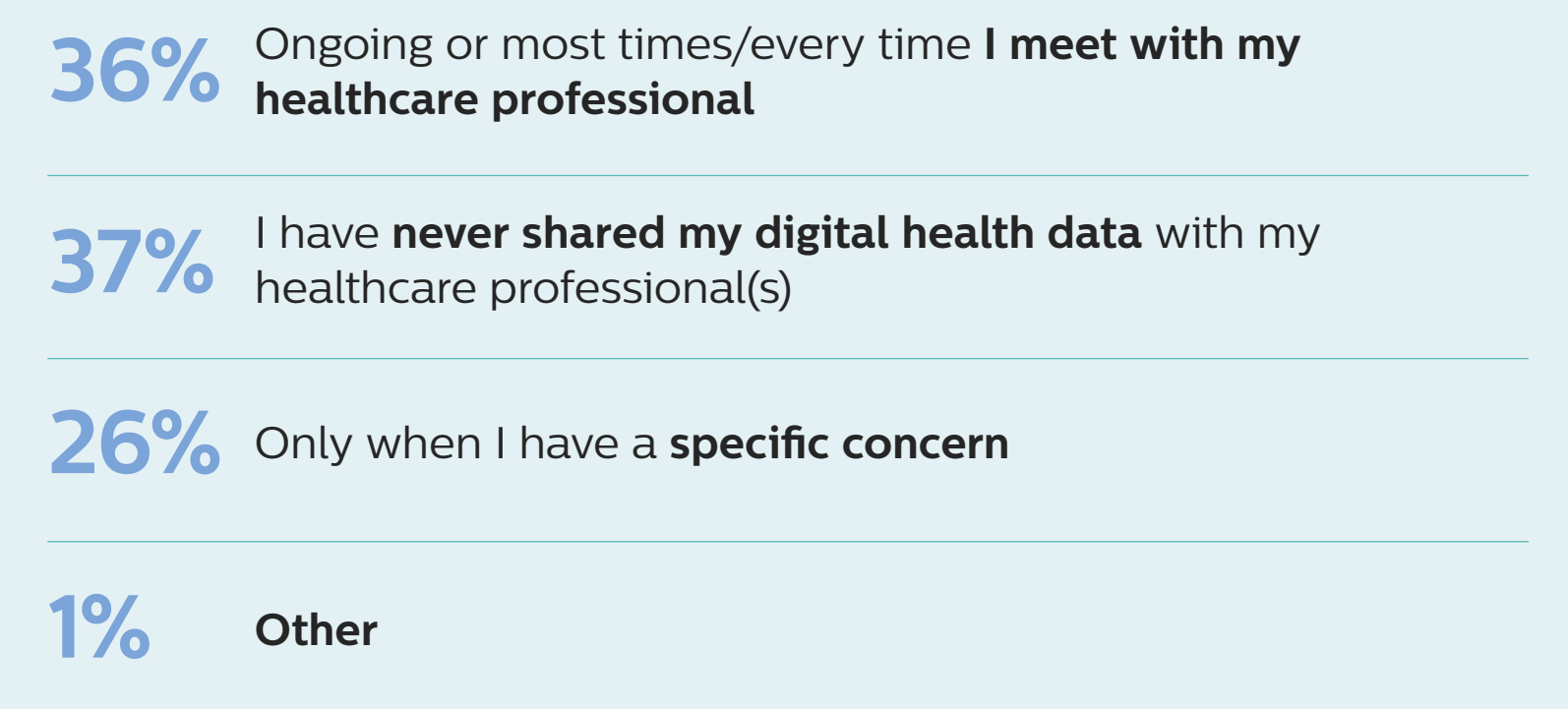
36% Ongoing or most times/every time **I meet with my healthcare professional**

37% I have **never shared my digital health data** with my healthcare professional(s)

26% Only when I have a **specific concern**

1% **Other**

Base: Total individuals who use digital health technology or mobile health apps (n=10,559)

Empowered patients –
access to data, more control

While digitally supported healthcare professionals will play an important role in changing the way that healthcare is delivered, understanding **how technology can have a positive impact on the patient experience** is just as significant.

The general population is looking for information and more control over almost all aspects of their lives. Giving an individual access to their own health data makes them more likely to engage with it in a way that will improve the quality of care they receive and their overall healthcare experience.

The demand for
data ownership

Patients want **ownership** of their health data

There is an appetite among individuals to have **access to their health data.** This access can take place via tracking various health metrics through digital health technologies or access to a digital health record (DHR). This reflects a desire for convenience, to have more control of their health, and learn more about themselves.

"*Patients will become more and more important – they're on the way to **empowering themselves,** often independent from healthcare professionals.***"**

Prof.dr. Jaap Goudsmit, MD, PhD
Amsterdam Neuroscience, Amsterdam University Medical Center
Harvard T.H.Chan School of Public Health, Harvard University

Of the general population who do not currently have access, or do not know if they have access, to their **DHR:**

63% Want access

21% Don't want access

16% Don't know

Base: Total individuals who do not or do not know if they have access to their DHR (n=11,031)

People who are **tracking their health** via digital health technology do so because:

42%

35%

34%

It's convenient

They learn more about themselves

They feel more in control of their health

Base: Total individuals who use digital health technology or mobile health apps (n=10,559)
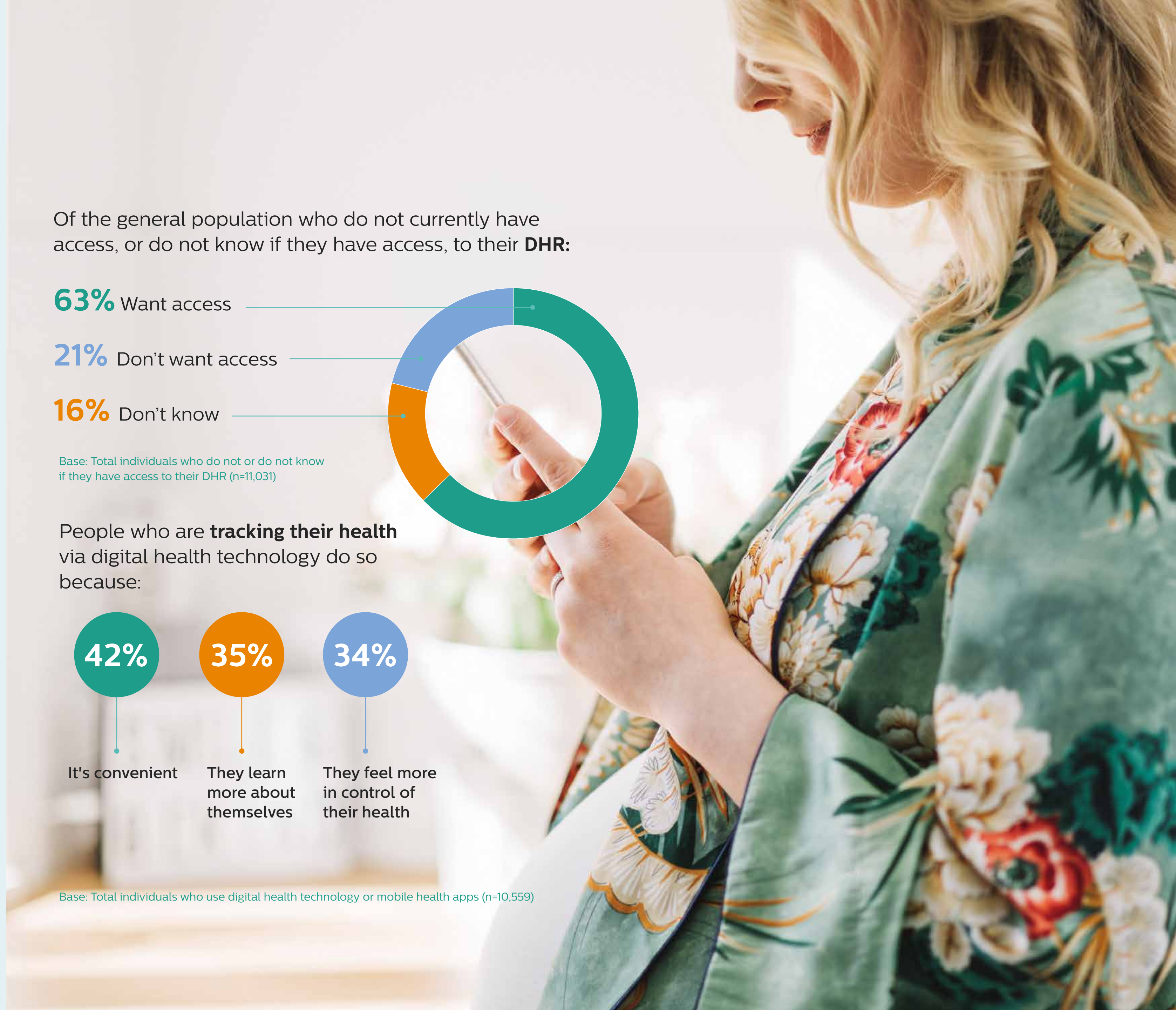
Empowered patients are more satisfied patients

Future Health Index research indicates that empowering patients through technology – enabling them to better manage their own health – has the potential to **improve the experience** for both patients and healthcare professionals

When asked what has **improved their experience** in the past five years, the top reasons cited by individuals that saw improvements relate to **access** and **convenience:**

53% It's easier to **schedule appointments**

47% It's easier to **get test results**

42% I receive appointment/treatment **reminders**

27% I am able to **monitor health indicators** on my own
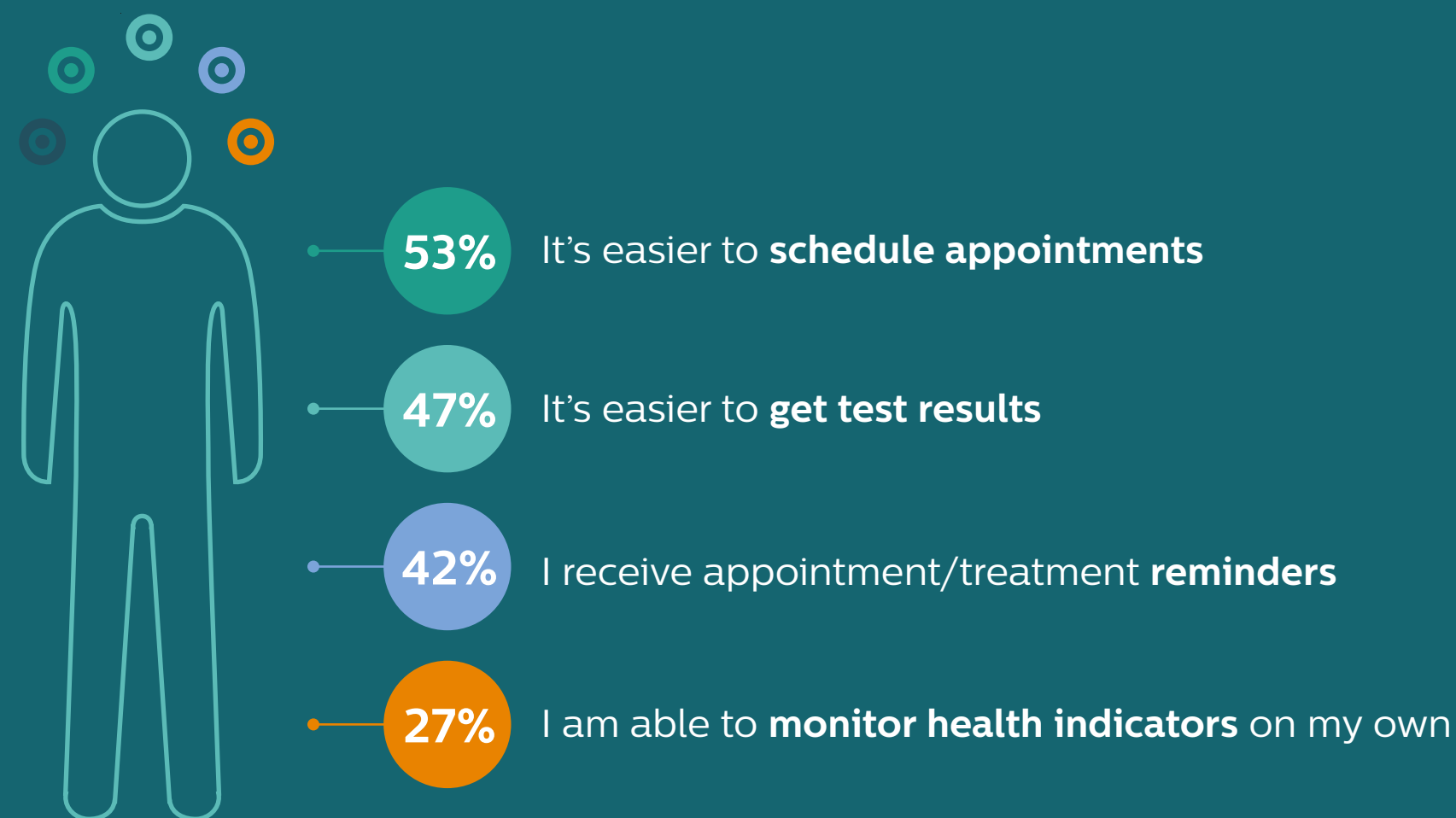
Base: Total individuals who say their healthcare experience has improved in the past five years (n=10,617)

Those **with access** to their digital health record (DHR) report better personal experiences in healthcare and better quality of care available to them than those who do not have access:

Those who **have access** to their DHR

Those **without access**

Percentage who rate their personal **experience of the care they receive** as good, very good or excellent

82%

66%

Percentage who rate the **quality of care available** to them in their country as good, very good, or excellent

80%

64%

Base: Total individuals who have access to their DHR (n=4,083)
Base: Total individuals who do not have access to their DHR (n=8,140)

Access to **digital health records** and clarity about how they can make health management easier can help drive use among individuals

People who have **access to their digital health record (DHR) and are incentivized to use it more** said they would be more likely to use it:

If it made it easier to **manage my health**	43%
If I had full **control of my records/information**	36%
If it **connected** all of my healthcare professionals	35%
If there was **improved data privacy/security**	35%
If it **saved me money**	31%
If there were **better regulations** regarding access to medical information	31%
If there were **proof of benefits/use cases**	31%
If there was **more education/training** on how to use DHRs	24%
Other	1%

Base: Total individuals with access to their DHR and are incentivized to use it more (n=3,787)

With access comes openness to **data sharing**

Patients are more collaborative with healthcare professionals when they have **ownership of their health data**

The research shows that individuals are more open to granting **healthcare professionals access to their data** when they have access to that data themselves. Healthcare professionals, particularly the younger generation aged 18–34 years, agree that patients having access to their health data improves the patient experience.

84% of the general population **with access to their digital health record** (DHR) say they want their healthcare professional to have access too

Base: Total individuals who have access to their DHR (n=4,083)

64% of individuals who **do not have access to their DHR,** or **don't know if they have access,** want their healthcare professional to have this access

Base: Total individuals who do not or do not know if they have access to their DHR (n=11,031)

Percentage of healthcare professionals who say each of the following have **positively impacted their patients' experience:**

Patients having access to their own health data from healthcare professionals (e.g., test results, scans, prescriptions, etc.)

Healthcare professionals having access to higher quality images (e.g., from X-rays, MRIs, etc.), making it easier to identify potential issues

Medical-grade health trackers/applications (e.g., connected glucose monitor)

Healthcare professionals having access to patients' full medical history (e.g., records from all healthcare professionals seen, even those outside the same practice/hospital)

Healthcare professional-to-healthcare professional telehealth (e.g., consulting virtually with other healthcare professionals, sharing images, recommending treatment plans, etc.)

100%

65% | 54% | 54% | 53% | 46% | 43% | 47% | 38% | 37% | 37% | 33% | 30% | 40% | 31% | 25%

0

● Healthcare professionals aged 18–34   ● Healthcare professionals aged 35–54   ● Healthcare professionals aged 55+
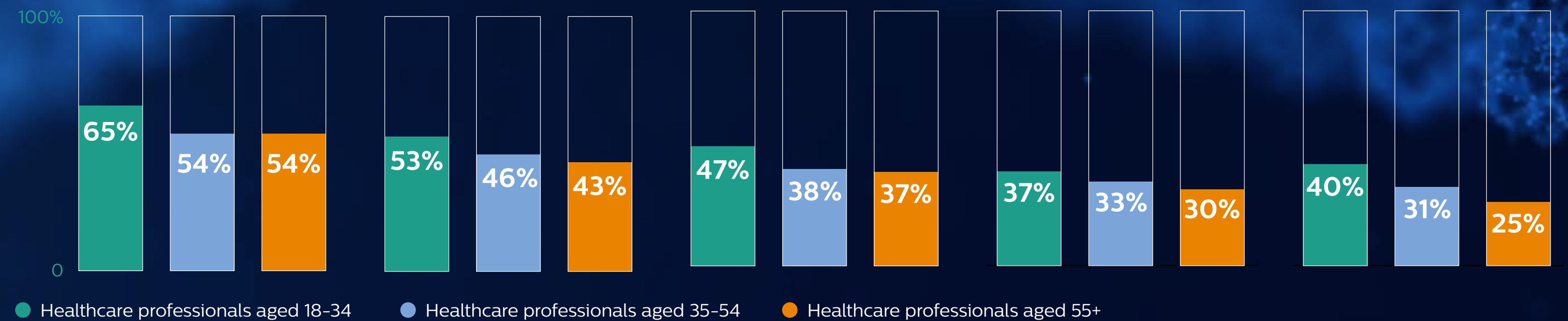
Base: Total healthcare professionals (18–34 years old n=450; 35–54 years old n=2,016; 55= years old n=534)

When patients do share data, they perceive the **quality of care** they receive to be higher

Those who track and share their health data are slightly more likely to perceive the **quality of care** available to them positively

General population that perceive the quality of care available to them as good, very good or excellent:

74% Individuals who use digital health technology and **share their health data** with their healthcare professional
n=6,654

66% Individuals who use digital health technology and **do not share their health data** with their healthcare professional
n=3,905
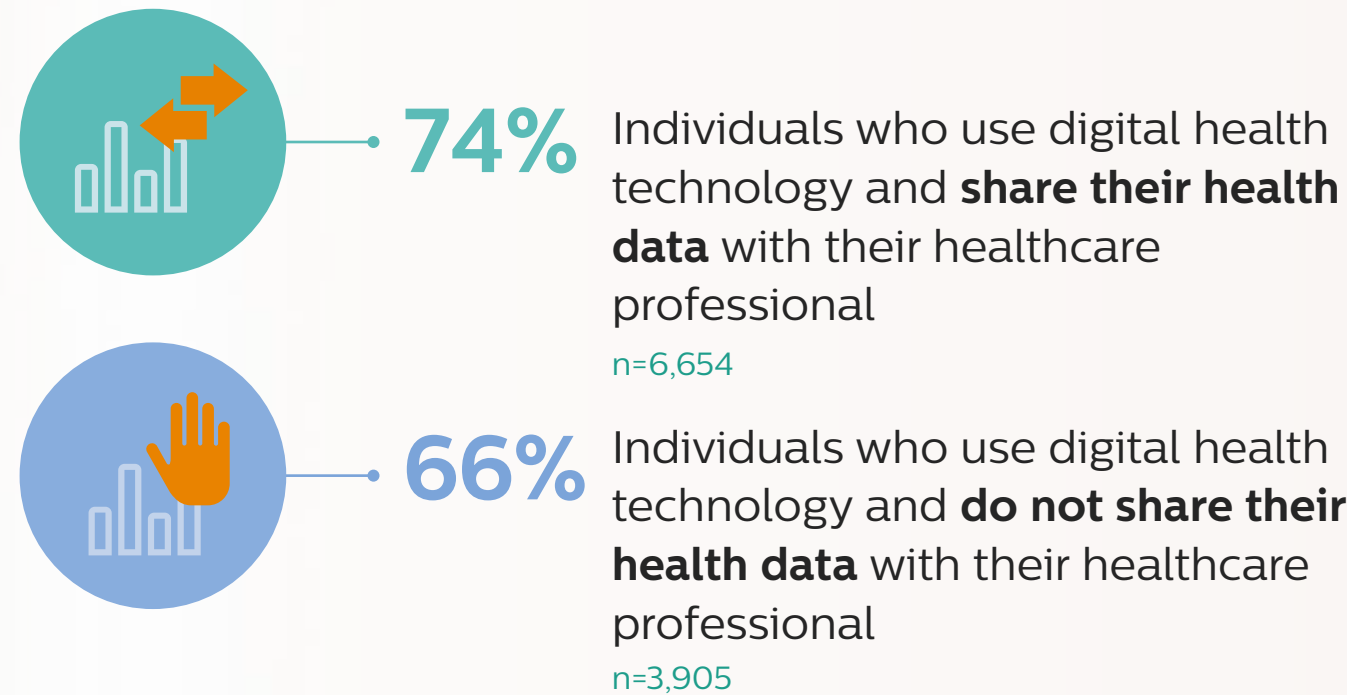
Healthcare professionals also report that their own experience has been **positively impacted** over the past five years by data–related updates, such as:

Access to patients' **full medical history**	57%
Patients having access to their **own health data**	44%
Ability to harness **big data**	39%
Medical-grade **health trackers**	37%
Digital health technology or mobile **health apps**	33%

Base: Total healthcare professionals

0   100%
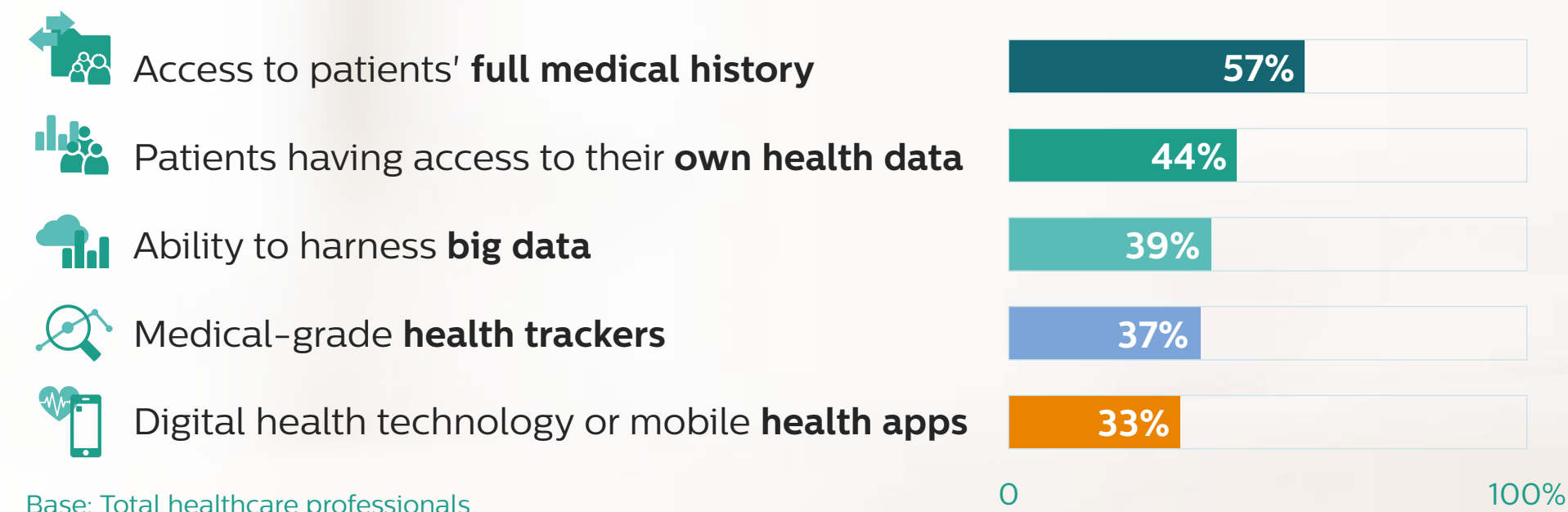
To use digital technology and share data, patients need **convenience** and **guidance**

The data suggests that there could be greater potential for individuals' uptake of digital health technology and mobile health apps if usage of these technologies was more **frequently recommended** by healthcare professionals. There is also evidence to suggest that individuals will be more likely to use digital health technology if it's easier to share data with their healthcare professional.

Older generations are more likely to use digital health technologies if recommended to do so by their healthcare professional. This indicates that healthcare professionals can play an important role in establishing data–centric habits among older healthcare system users.

The **top reasons** individuals would be more likely to use digital health technology are:

41%
Assurance health data is **secure**

37%
More affordable applications/ products

35%
Recommendation from healthcare professional

33%
Easier to share data with healthcare professional

Those who would be more likely to use **digital health technology** or **mobile health apps** if a healthcare professional recommended it to them:
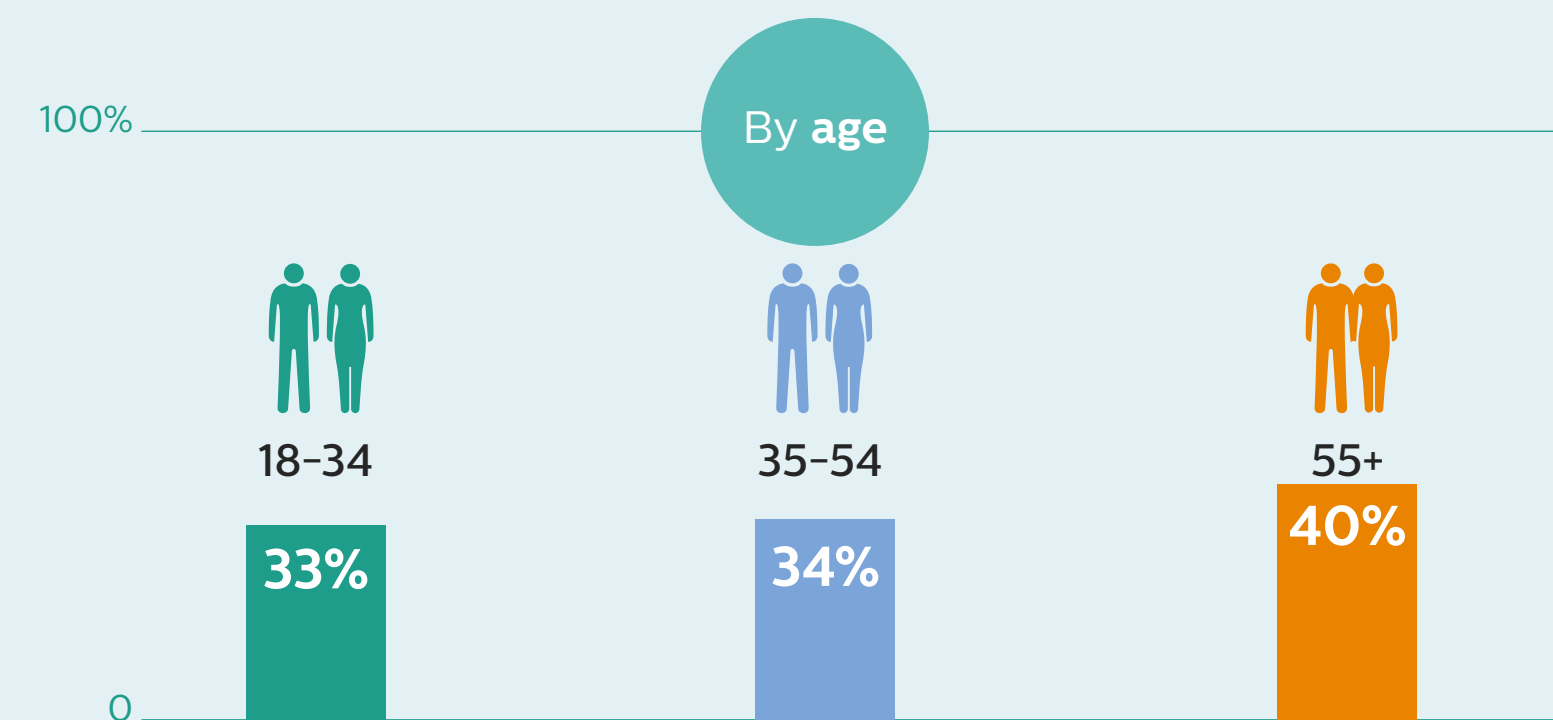
100%

By **age**

18–34	35–54	55+
33%	34%	40%

0

Base: Total individuals who do not always use digital health technology to track all health indicators and would be more likely to use it in some capacity (n=11,426)

Base: Total individuals who do not always use digital health technology or mobile health apps to track all health indicators and would be more likely to use it in some capacity (18–34 years old n=4,231, 35–54 years old n=4,198, 55+ years old n=2,997)
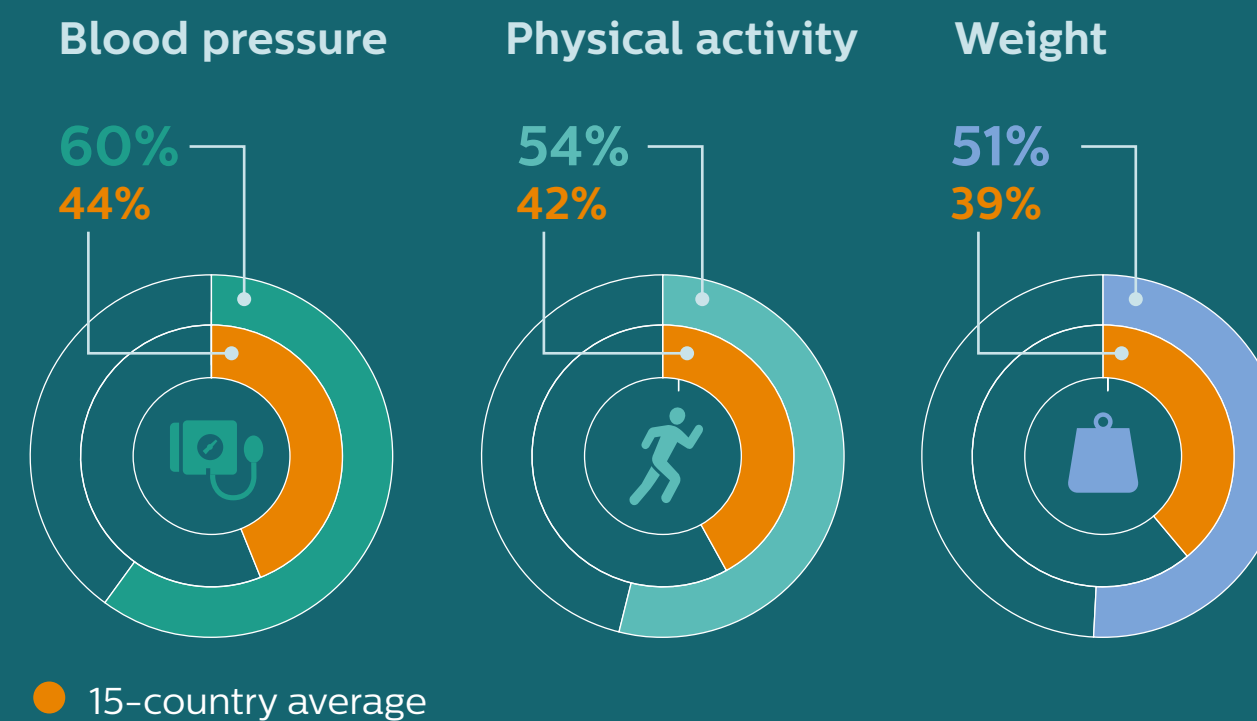
Healthcare professionals who recommend digital health technologies foster deeper **patient engagement**

China is a positive outlier in terms of healthcare professionals encouraging their patients to **track healthcare data**. In China, we can see that higher levels of tracking can open the door to deeper **patient engagement**, including contacting a healthcare professional because of healthcare data that they are tracking.

In China, healthcare professionals are more frequently **recommending patients track health indicators**, and individuals' tracked data is leading them to visit healthcare professionals.

Healthcare professionals in China are significantly more likely to recommend patients use digital health technology or mobile health apps to track key health indicators often or always:

Blood pressure
60%
44%

Physical activity
54%
42%

Weight
51%
39%

● 15-country average

Chinese citizens who use **digital health technology** or **mobile health apps** are more likely to have contacted a healthcare professional as a result of that data (**80% vs. 47% 15-country average**)

20%
No

23%
Yes – it was a **minor reason**

58%
Yes – it was the **primary reason**

Base: Total healthcare professionals in China (n=202)
Base: Total healthcare professionals

Base: Total individuals in China who use digital health technology or mobile health apps (n=946)

Theme 3
Learning from
forerunners

In earlier years of the Future Health Index, we saw that some emerging countries had the potential to **leapfrog others in their adoption of digital health technology.** In 2019, we see that some (mainly China, Saudi Arabia and, in some cases, India and Russia) have already leapfrogged and these technologies are increasingly part of the everyday healthcare experience for both healthcare professionals and patients.

Although specific challenges and circumstances differ from country to country, the experiences of digital health technology forerunners provide lessons that all countries can learn from and apply to their own healthcare systems.

Some countries are moving steadily from **gaining access** to digital health technology to **implementing it**

China and **Saudi Arabia** are consistent forerunners when it comes to adoption and use of all new technologies. Some other emerging markets, including **India** and **Russia**, are also excelling in specific areas.

Percentage of healthcare professionals who currently use any **digital health technology** or **mobile health apps**

15-country average	France	UK	Netherlands	Germany	Poland	Italy	Russia
78%	79%	72%	86%	64%	77%	88%	81%

US	Brazil	Saudi Arabia	India	South Africa	China	Singapore	Australia
76%	75%	85%	88%	48%	94%	82%	76%
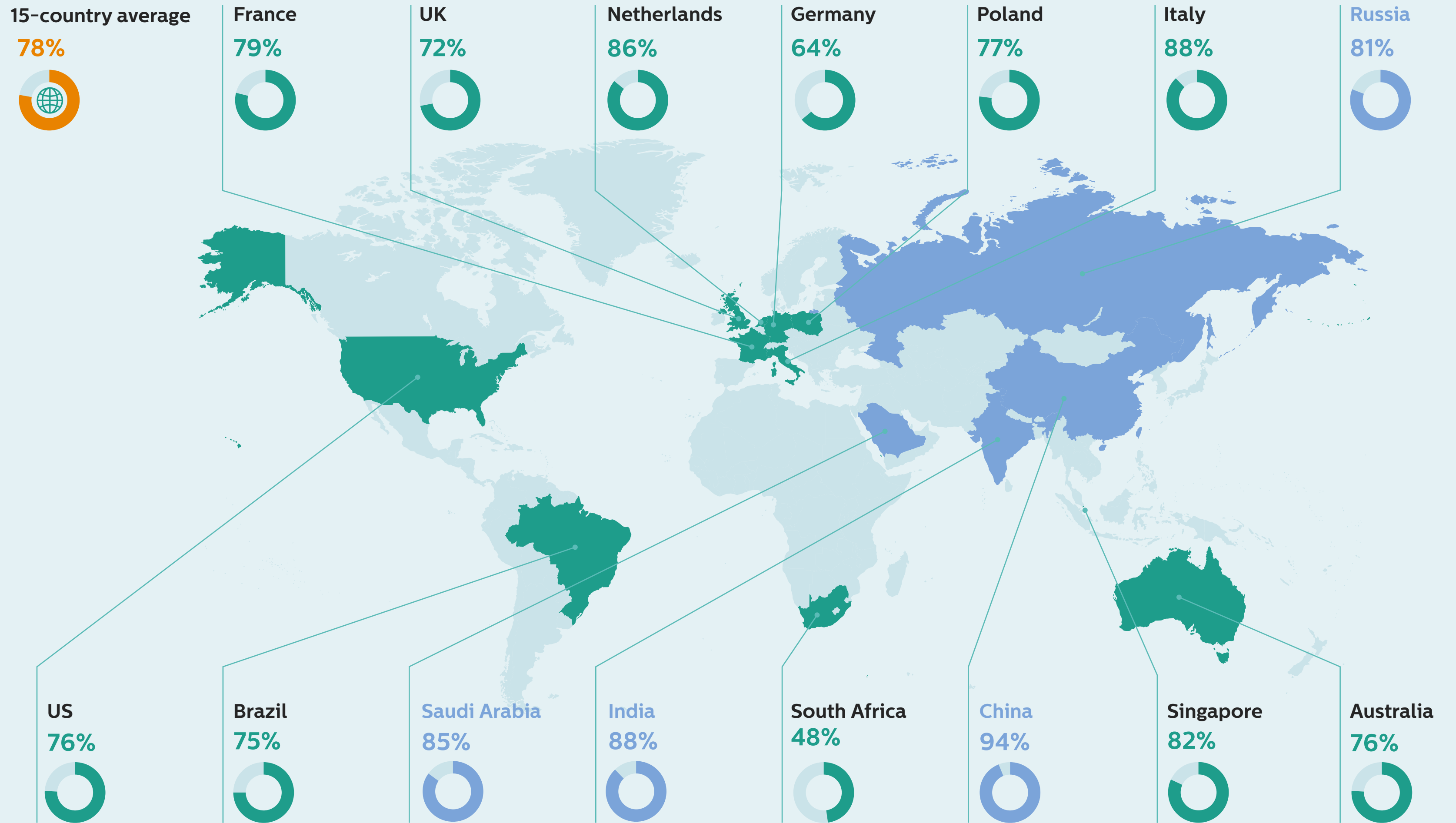
● Forerunners

Base: Total healthcare professionals

Individuals in China, Saudi Arabia and India more frequently say they **take action** related to their health as a result of tracking key health indicators

Individuals in emerging countries are particularly likely to **track healthcare indicators via digital health technology and mobile health apps**, and use that data as a prompt to take action regarding their health and contact their healthcare professional.

The **general population,** who use digital health technology frequently, report that the information they receive from their digital health technology or mobile health apps led them to contact a healthcare professional, especially in **China**.

While individuals in **Russia** are currently less likely than those in other forerunner countries to take action, the higher growth rate and user penetration suggest opportunity for this to increase in the future.

Base: Total individuals who use digital health technology (n=10,559)

80% China

74% Saudi Arabia

70% India

38% Russia

47% 15-country average

Country

China | Saudi Arabia | India | Russia | 15-country average

Among the **general population** who have seen a healthcare professional in the past 12 months, individuals in **China** are the most likely to track key health indicators.

63% China

51% Saudi Arabia

37% India

56% Russia

46% 15-country average
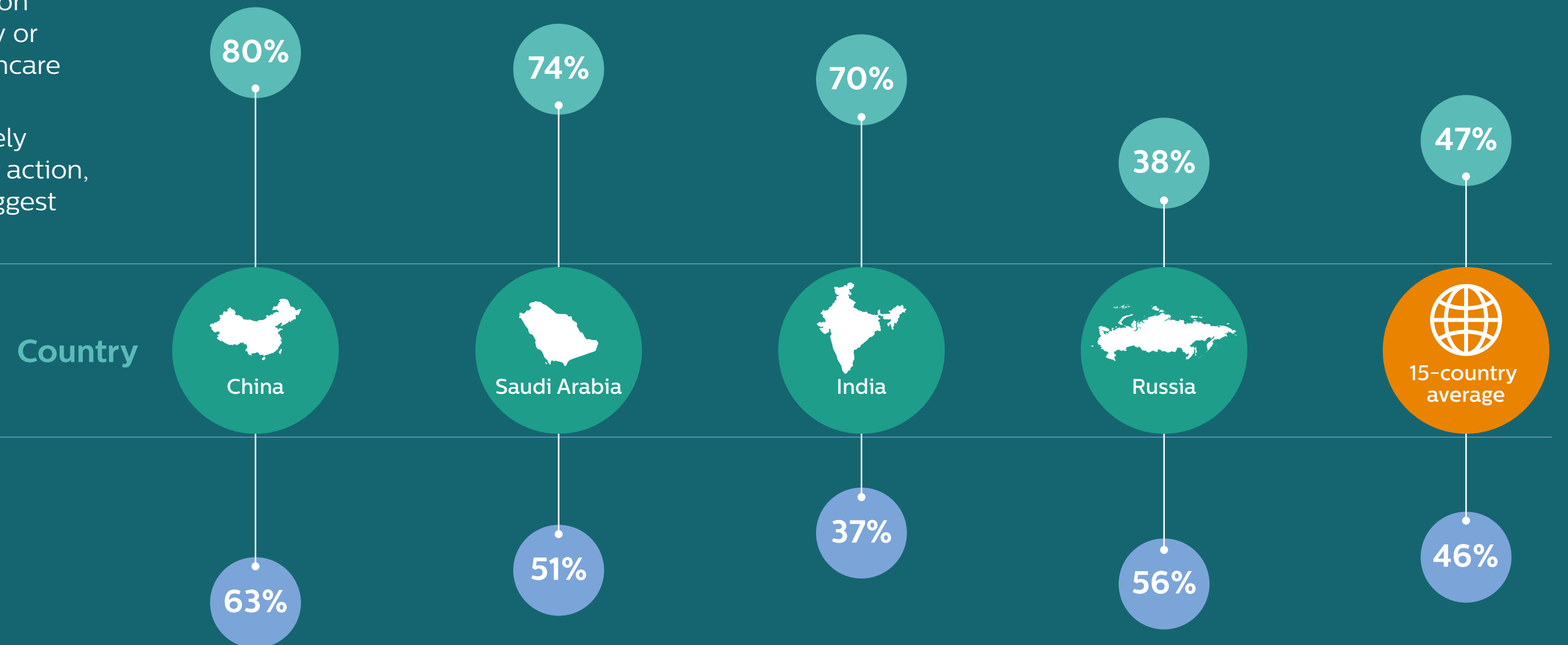
Base: Total individuals who have seen a healthcare professional in the past 12 months (n=9,334)

Higher **growth rates** for wearables are anticipated for most forerunners

User penetration of wearables in **Russia** is expected to grow to **4.4% by 2023.** Revenue in the country from wearables is expected to see an annual growth rate of

5.6%

In **Saudi Arabia**, revenue from wearables is expected to show an annual growth rate of

4.6%

In **India**, revenue from wearables is expected to show annual growth of

5.8%
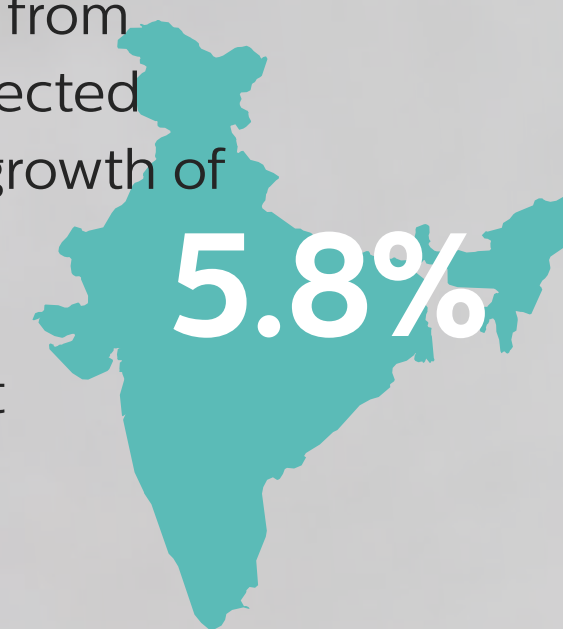
User penetration is expected to hit **4.6% by 2023.**

Across the 15 countries included in the 2019 FHI, **China** generates the most revenue from wearables at **$4,599 million in 2019,** and is expected to see annual growth rate of

3.7%

15-country average **growth rate:**

4.5%

Russia: https://www.statista.com/outlook/319/149/wearables/rus
Saudi Arabia: https://www.statista.com/outlook/319/110/wearables/saudi-arabia
India: https://www.statista.com/outlook/319/119/wearables/india
China: https://www.statista.com/outlook/319/117/wearables/china

Emerging countries are leading the way for **AI in healthcare**

China has led the share of global investment and financing in the field of AI between 2013 and Q1 2018 with **60%** of the global total, followed by the **US (29%)** and **India (5%)**. This could be allowing China to **experience more of AI's benefits.** Other emerging countries also perform strongly in the Future Health Index data when it comes to public perceptions of AI.

The general population in China, Russia and Saudi Arabia are among the **most likely to associate more accurate diagnosis** with the use of AI in healthcare

The general population in China and India are among the least likely to **associate AI in healthcare with less human interaction**

Percentage of the general population that associates more **accurate diagnosis with the use of AI in healthcare**
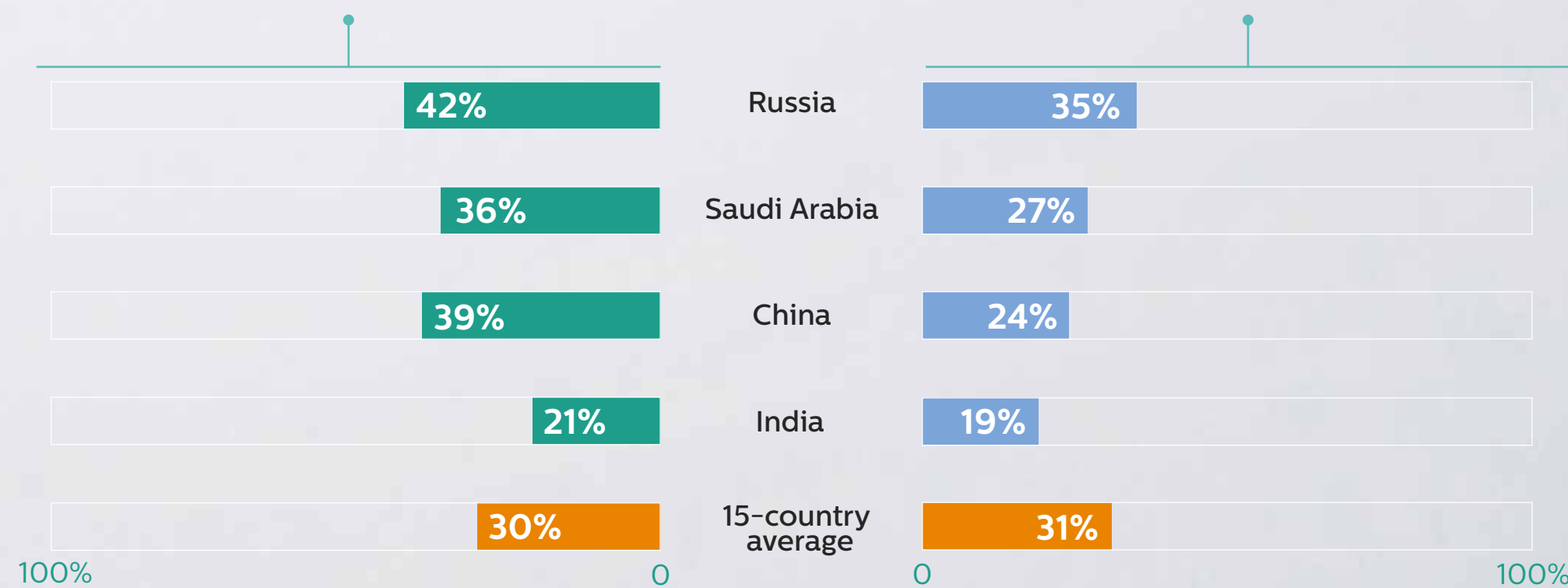
Percentage of the general population that **associates AI in healthcare with less human interaction**

	Accurate diagnosis	Less human interaction
Russia	42%	35%
Saudi Arabia	36%	27%
China	39%	24%
India	21%	19%
15-country average	30%	31%

100%   0   0   100%
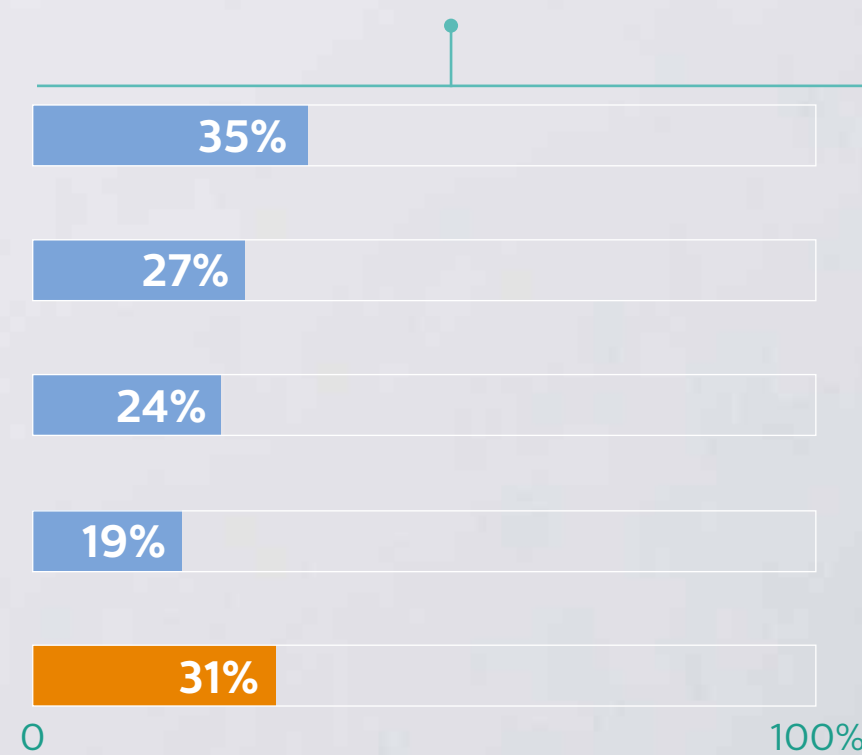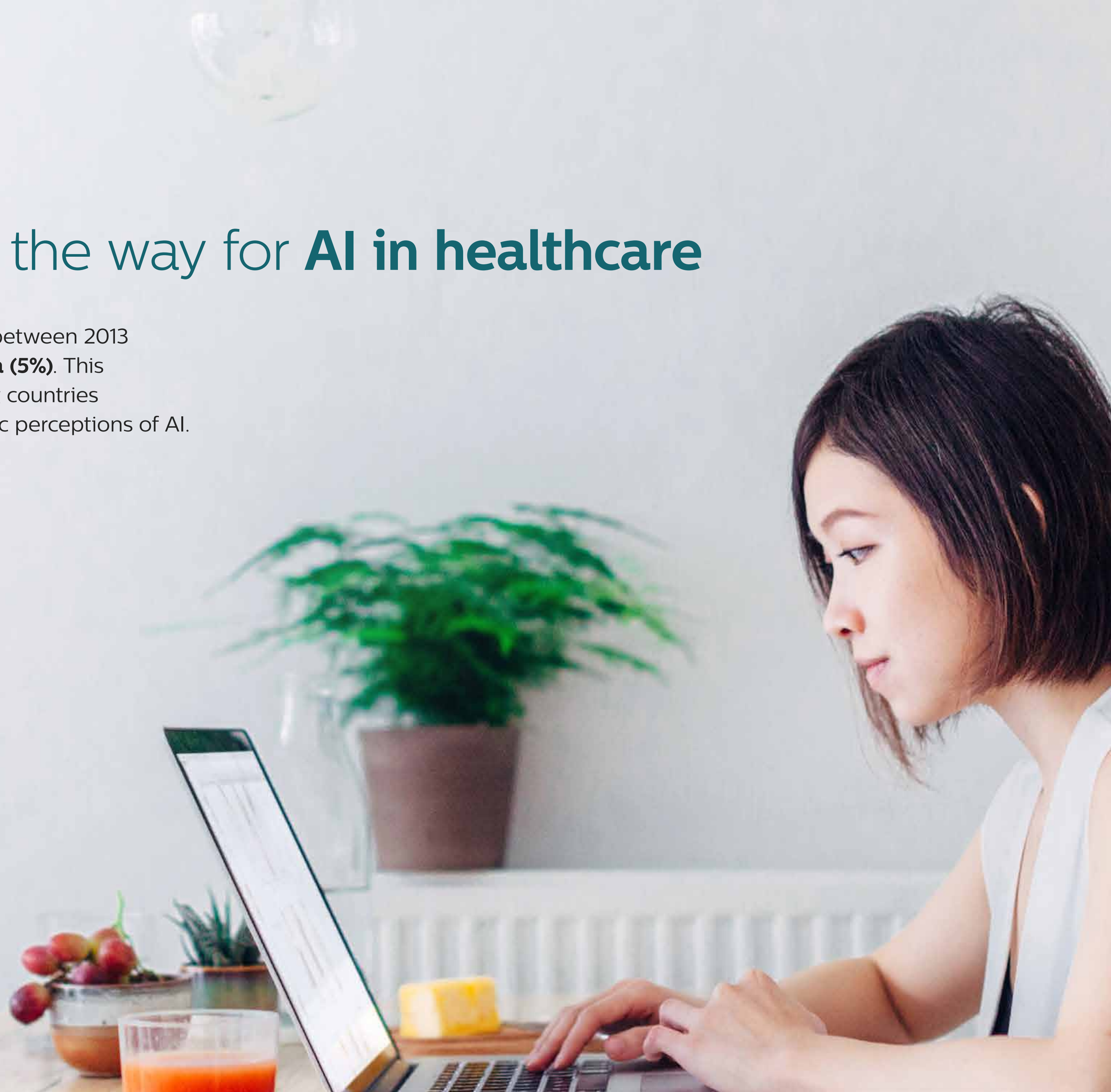
Forerunner countries have used technology to overcome **access and availability challenges**

Telehealth adoption is higher among healthcare professionals, particularly in countries with low physician density, perhaps due to a demand for an alternative solution

Physician **density** per 1,000 population

Russia		4.0
Saudi Arabia		2.6
China		1.8
India		0.8
15-country average		2.7

1 per 1,000

World Health Organization: http://apps.who.int/gho/data/view.main.GDO1801v

Note: data is from 2014–2016 (varies by country)
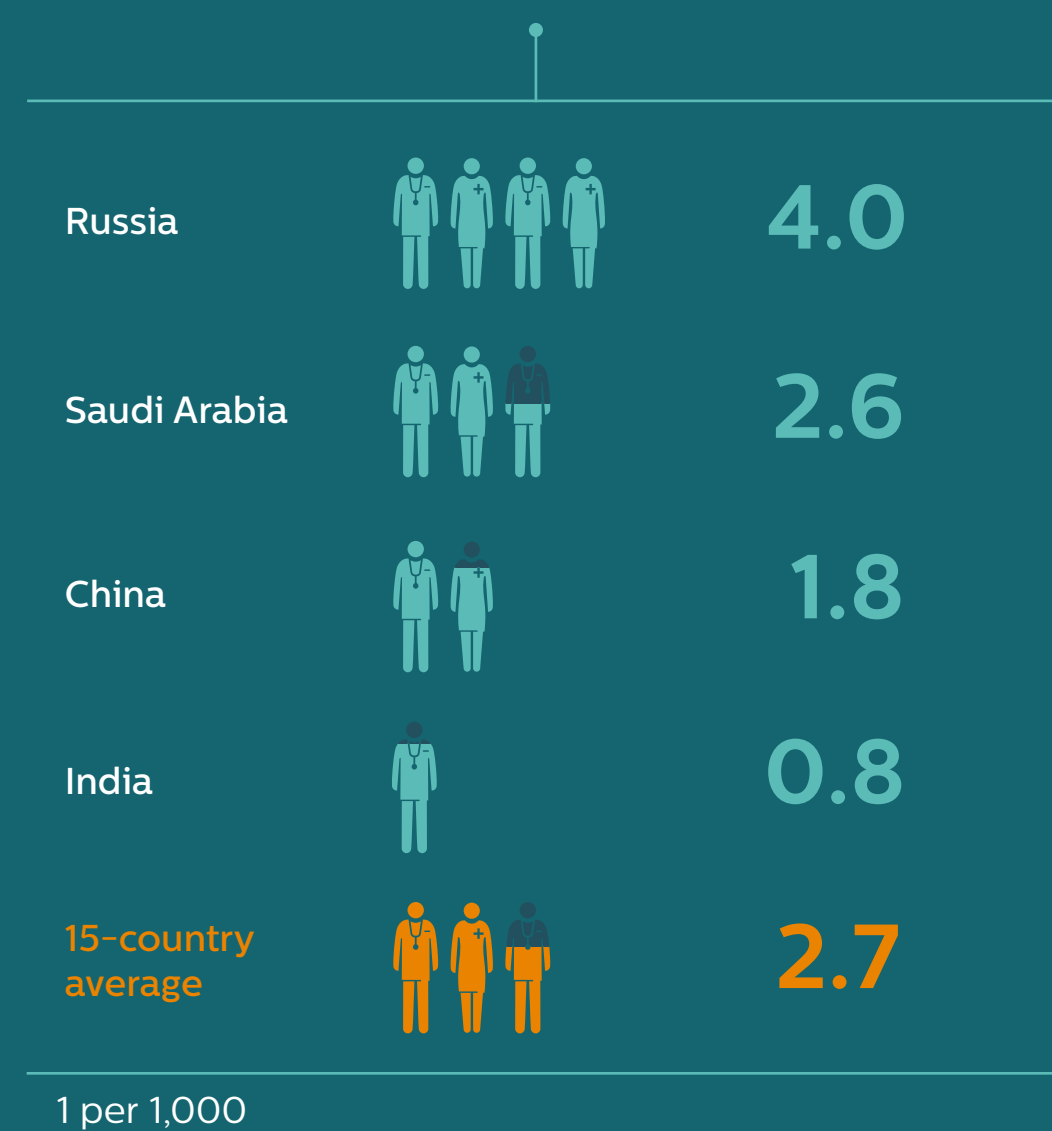
Telehealth adoption among healthcare professionals

100%

- China: 89%
- Saudi Arabia: 75%
- India: 67%
- Russia: 65%
- 15-country average: 61%

0

Base: Total healthcare professionals
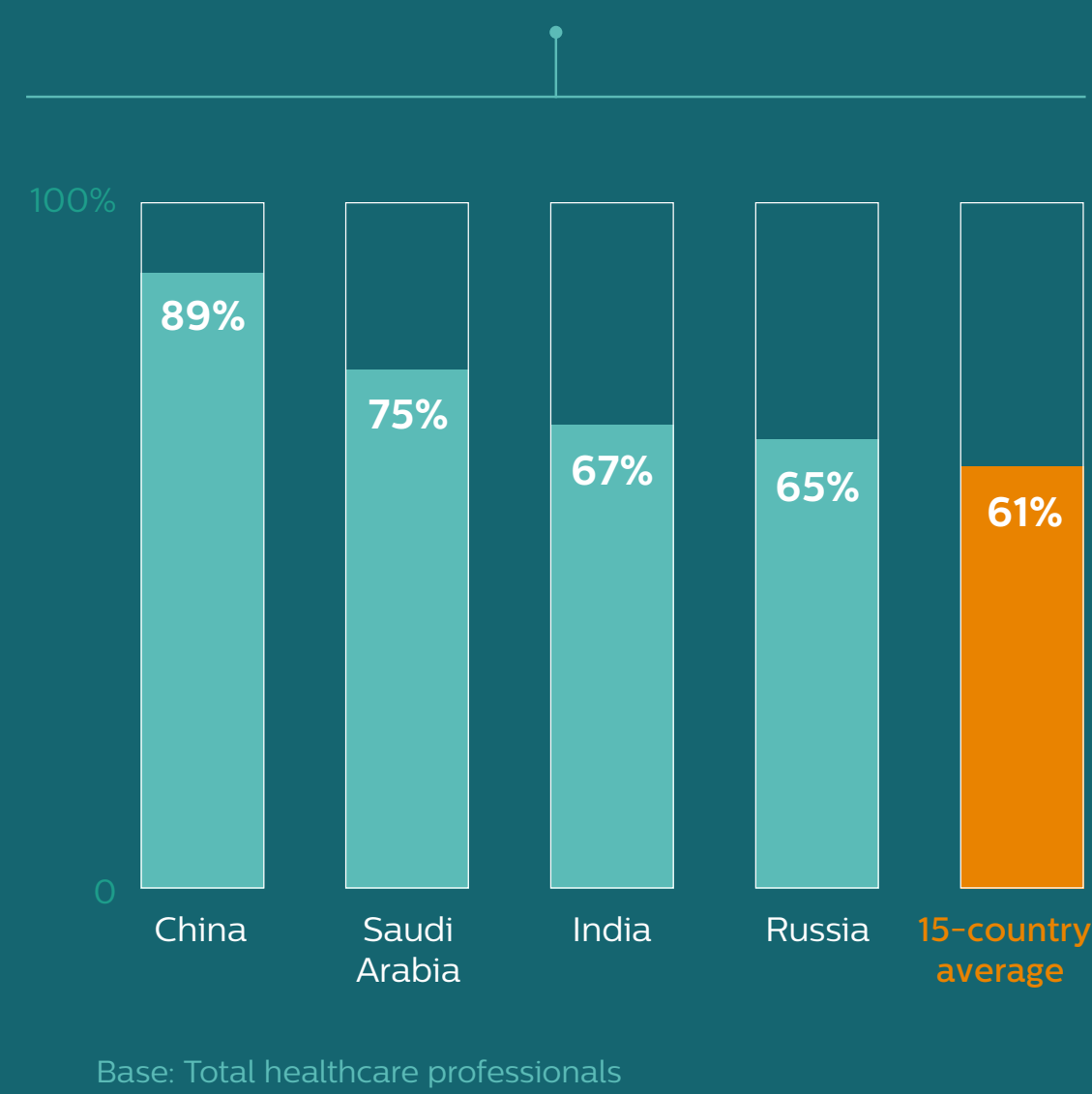
Individuals in **China** and **Russia** are among the most likely to say, if given the choice, they would prefer a consultation with their doctor **remotely via a digital channel** for non–urgent care

China	Russia	Saudi Arabia	India	15-country average
44%	40%	38%	26%	27%

Base: Total individuals
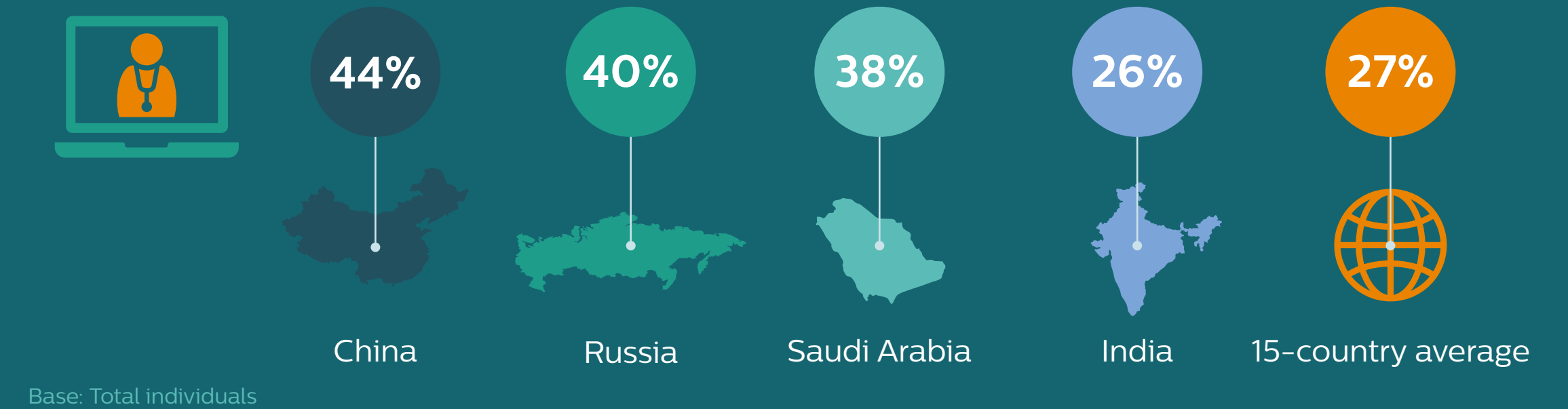
Healthcare professionals who say the following has **positively impacted their experience** as a healthcare professional in the last five years

Healthcare professional-to-patient telehealth

100%
40%
34%

Healthcare professional-to-healthcare professional telehealth

100%
56%
48%

● Emerging ● Developed

● Emerging ● Developed

Base: Total healthcare professionals
Total healthcare professionals in emerging countries (n=1,217)
Total healthcare professionals in developed countries (n=1,827)

Base: Total healthcare professionals
Total healthcare professionals in emerging countries (n=1,217)
Total healthcare professionals in developed countries (n=1,827)

Conclusions: how can health systems best prepare themselves for continuous transformation?

Technology continues to evolve and this will, in turn, be a **driver of continuous transformation** in health systems around the world.

Healthcare professionals that are embracing the use of digital health technology are seeing a positive impact on their own experience, as well as that of their patients. Digitally empowered patients who are sharing their health data are seeing a strengthened relationship with healthcare professionals. And forerunner countries, who have leapfrogged others in their adoption of digital health technology, have solved challenges that others are still grappling with, but face new obstacles that come with the advanced use of digital health technology.

"*Patient-centered integrated services should not be about cost-effectiveness and efficiency, but a response to clear patient needs and outcomes.*"

Cecilia Anim CBE
Former President, Royal College of Nursing

Healthcare professionals – becoming true **digital collaborators**

Healthcare professionals that have brought digital health technology into their ways of working are seeing a **positive impact on the way that they and their patients experience healthcare.** The challenge, now, is to overcome the barriers to more healthcare professionals broadening and deepening their use of digital health technologies.

Healthcare professionals who use digital health records (DHRs) in their practice, for example, report that the technology had a **positive impact** on[1]:

Quality of care provided
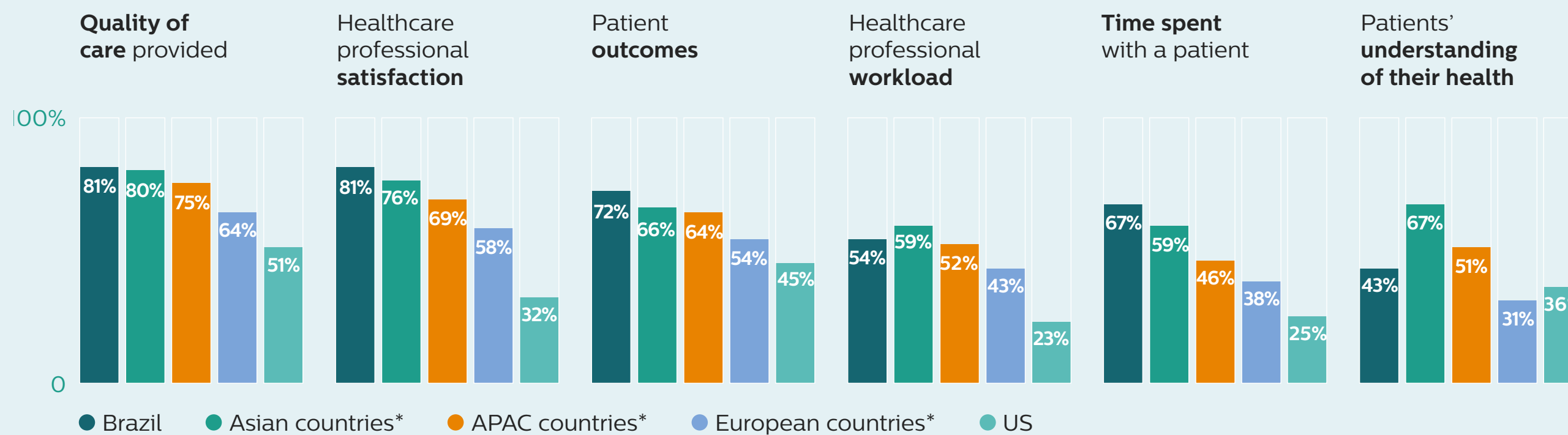
Brazil	81%
Asian countries*	80%
APAC countries*	75%
European countries*	64%
US	51%

Healthcare professional **satisfaction**

Brazil	81%
Asian countries*	76%
APAC countries*	69%
European countries*	58%
US	32%

Patient **outcomes**

Brazil	72%
Asian countries*	66%
APAC countries*	64%
European countries*	54%
US	45%

Healthcare professional **workload**

Brazil	54%
Asian countries*	59%
APAC countries*	52%
European countries*	43%
US	23%

Time spent with a patient

Brazil	67%
Asian countries*	59%
APAC countries*	46%
European countries*	38%
US	25%

Patients' **understanding of their health**

Brazil	43%
Asian countries*	67%
APAC countries*	51%
European countries*	31%
US	36%

● Brazil   ● Asian countries*   ● APAC countries*   ● European countries*   ● US

1 Note: South Africa is excluded due to a small sample size

* Note: APAC countries = Australia and Singapore, Asian countries = China, India, Saudi Arabia and Singapore, European countries = France, Germany, Italy, Netherlands, Poland, Russia and UK

Base: Total who currently use digital health records within their hospital/practice (weighted): (Brazil n=166, US n=171, APAC n=341, Asian countries n= 616, European countries n= 1,078)

Percentage of healthcare professionals using digital health technology in their **hospital/practice:**

Use of **DHRs**

Brazil	82%
Asian countries*	77%
APAC countries*	85%
European countries*	77%
US	84%

Use of **telehealth**

Brazil	42%
Asian countries*	74%
APAC countries*	64%
European countries*	59%
US	46%

Use of **AI**

Brazil	45%
Asian countries*	66%
APAC countries*	39%
European countries*	41%
US	33%

● Brazil   ● Asian countries*   ● APAC countries*   ● European countries*   ● US
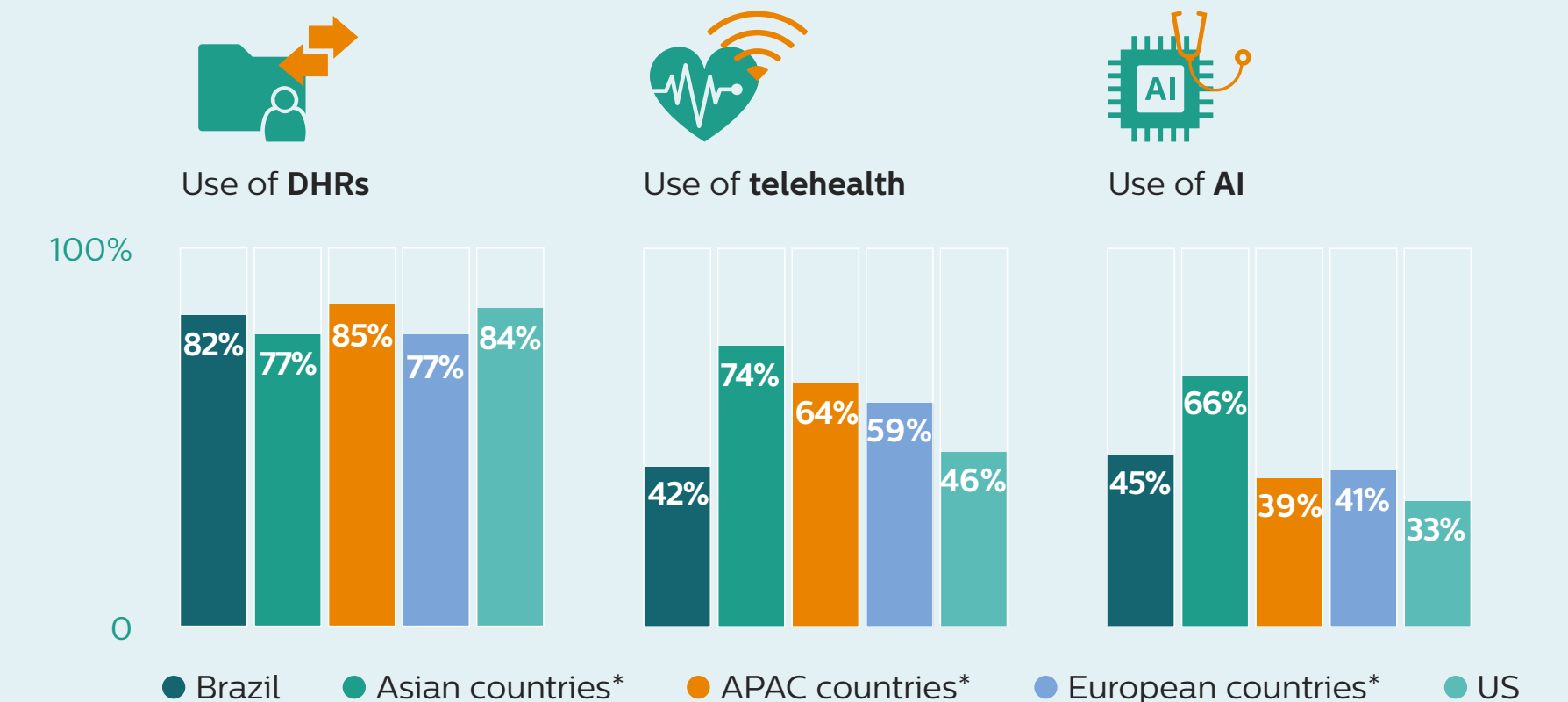
*Note: Telehealth: either healthcare professional-to-patient or healthcare professional-to-healthcare professional

Base: Total healthcare professionals: (Brazil n=203, US n=203, APAC countries n=400, Asian countries n=800, European countries n=1,078)

Empowered patients – from data collectors to data sharers

Individuals who **track** and **share their health data** are more likely to perceive the quality of care available to them positively. The challenge, now, is to encourage more individuals to share data with their healthcare professional, giving healthcare professionals access to more up–to–date and complete information that will allow for more coordinated patient care. Younger individuals' preference for sharing data offers promise for the future.

Individuals are starting to share their data with healthcare professionals on an **ongoing basis.**

How often do you **share your health data** from digital health technology or mobile health apps with your healthcare professional?

Ongoing (Including between visits)

Most times/every time I meet with my healthcare professional

Only when I have a **specific concern**

Total

Ongoing			Most times/every time			Only when I have a specific concern			Total		
17%	15%	8%	25%	23%	18%	25%	25%	28%	68%	64%	55%

General population aged:
- 18–34
- 35–54
- 55+

Base: Total individuals who use digital health technology: (18–34 years old n=4,073, 35–54 years old n=3,804, 55+ years old n=2,681

Large majorities of those who have access to their digital health record (DHR) in every region want the healthcare professionals involved in their care to **have access to their DHR**, too.

Percentage of individuals with access to their DHR who want the healthcare professionals involved in their care to **have access to their DHR:**

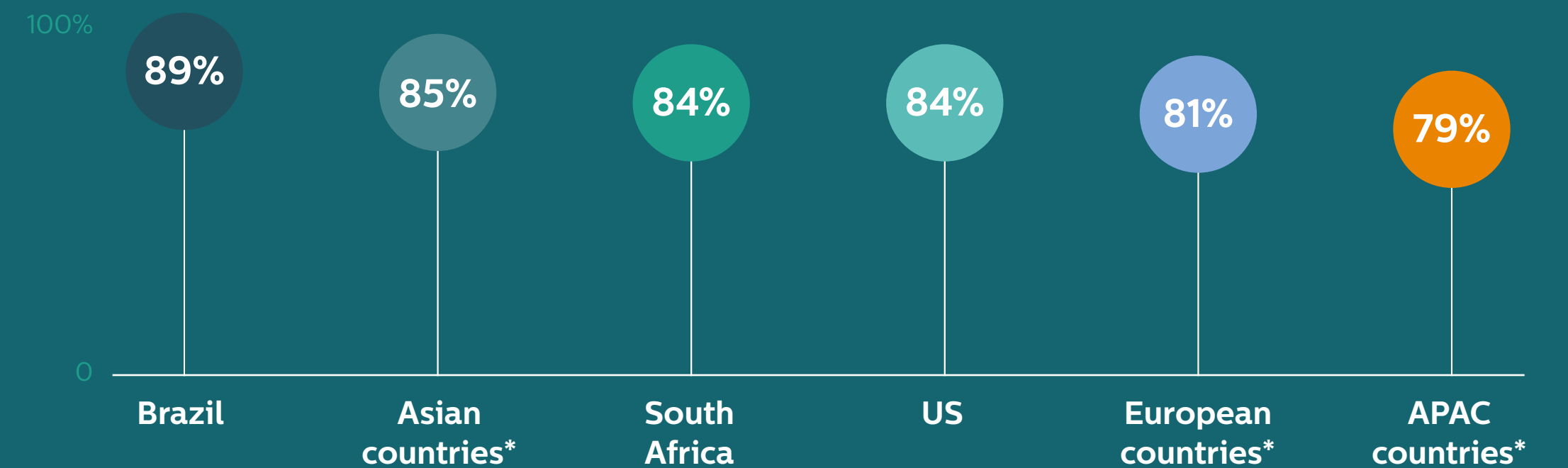| Brazil	Asian countries*	South Africa	US	European countries*	APAC countries*
89%	85%	84%	84%	81%	79%

* Note: APAC countries = Australia and Singapore; Asian countries = China, India, Saudi Arabia and Singapore; European countries = France, Germany, Italy, Netherlands, Poland, Russia and UK
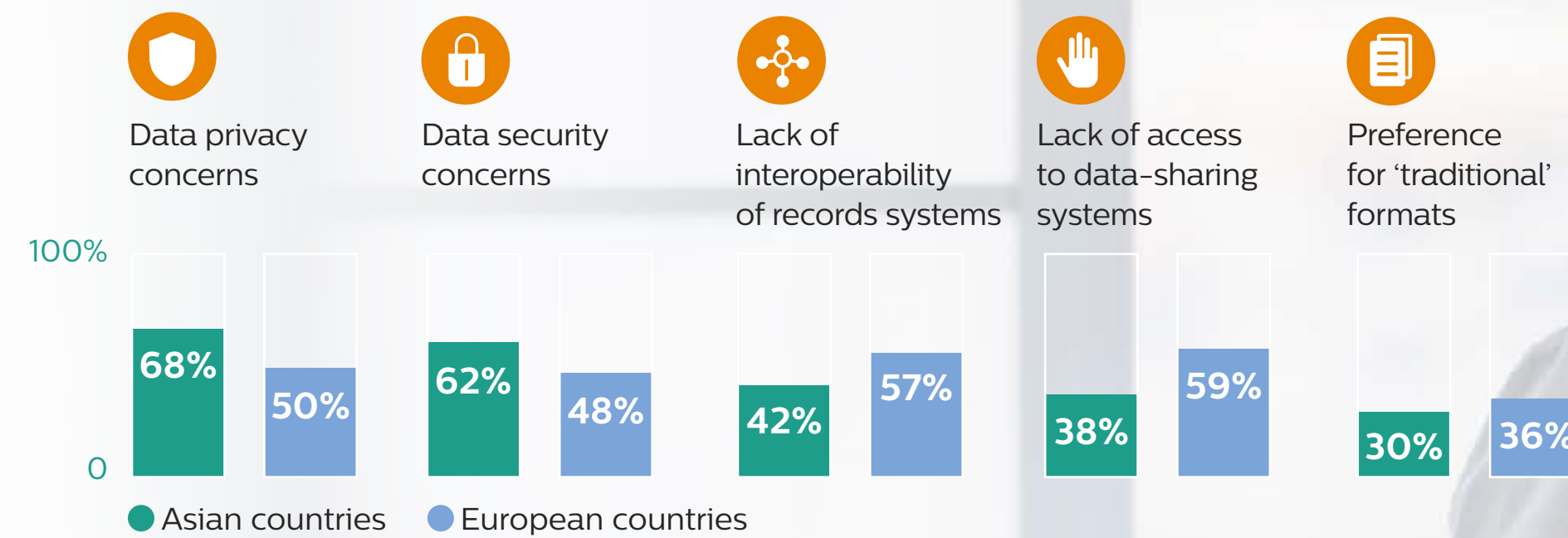
Base: Total individuals with access to their digital health record: (European countries n=1,181, Asian countries n=1,760, APAC countries n=563, South Africa n=273, US n=428, Brazil n=160)

While the forerunners are solving challenges and using digital healthcare technologies, barriers to **broader adoption** remain

Asian countries[1] are among the most advanced in terms of healthcare professionals using **digital health technologies.** However, with increased use come future challenges with healthcare professionals' attitudes towards security and privacy, as well as the future of their own jobs.

In the Future Health Index's **Asian countries**, healthcare professionals who **do not share patient data outside** their healthcare facility cite data privacy and security concerns as key reasons why. In the Future Health Index's European countries, interoperability and lack of access are more prominent.

Data privacy concerns	Data security concerns	Lack of interoperability of records systems	Lack of access to data-sharing systems	Preference for 'traditional' formats
68% / 50%	62% / 48%	42% / 57%	38% / 59%	30% / 36%

● Asian countries ● European countries

Base: Healthcare professionals who do not share patient information with other healthcare professionals outside their facility (Total n=1,907; European countries=862; Asian countries=608)

In **China** and **Singapore,** healthcare professionals face **emotional concerns** as well as functional barriers:

	China	Singapore	15-country average
Feel their long-term job security is **threatened** by new advancements in healthcare technology	28%	20%	14%
Do not feel threatened by new advancements in healthcare technology	68%	73%	78%
Don't know	4%	7%	8%

Base: Total healthcare professionals

1. Asian countries in the Future Health Index: China, India, Saudi Arabia and Singapore
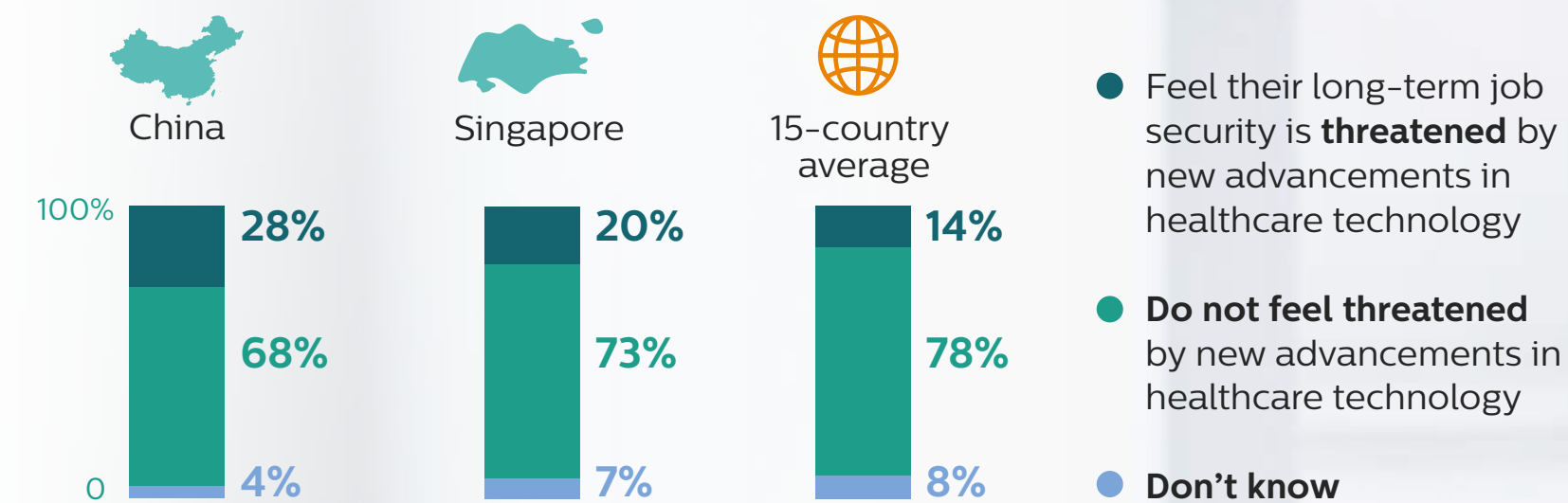
Country **profiles**

Australia (AUS)

Country background

GDP per capita (2017 – USD)*	$53,799.94	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$4,934.05	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	9.4%	World Bank (2015)
Median age	37.4	UN (2015)
Average life expectancy	82.9	WHO (2016)
Healthy life expectancy	73.0	WHO (2016)
Infant mortality rate (per 1,000)	3.0	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Australia score	15-country average
Input (healthcare spend as a percent of GDP)	9.4	8.4
Overall outcome score	87.9	75.8
Efficiency ratio (outcomes/input)	9.4	10.2

Brazil (BRA)

Country background

GDP per capita (2017 – USD)*	$9,821.41	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$780.40	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	8.9%	World Bank (2015)
Median age	31.3	UN (2015)
Average life expectancy	75.1	WHO (2016)
Healthy life expectancy	66.0	WHO (2016)
Infant mortality rate (per 1,000)	13.2	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Brazil score	15-country average
Input (healthcare spend as a percent of GDP)	8.9	8.4
Overall outcome score	64.8	75.8
Efficiency ratio (outcomes/input)	7.3	10.2

* World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

China (CHN)

Country background

GDP per capita (2017 – USD)*	$8,826.99	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$425.63	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	5.3%	World Bank (2015)
Median age	37.0	UN (2015)
Average life expectancy	76.4	WHO (2016)
Healthy life expectancy	68.7	WHO (2016)
Infant mortality rate (per 1,000)	8.0	World Bank (2017)
Top cause of death	Stroke	IHME (2017)

Efficiency ratio

	China score	15-country average
Input (healthcare spend as a percent of GDP)	5.3	8.4
Overall outcome score	75.9	75.8
Efficiency ratio (outcomes/input)	14.3	10.2

France (FRA)

Country background

GDP per capita (2017 – USD)*	$38,476.66	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$4,026.15	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	11.1%	World Bank (2015)
Median age	41.2	UN (2015)
Average life expectancy	82.9	WHO (2016)
Healthy life expectancy	73.4	WHO (2016)
Infant mortality rate (per 1,000)	3.5	World Bank (2017)
Top cause of death	Alzheimer's disease	IHME (2017)

Efficiency ratio

	France score	15-country average
Input (healthcare spend as a percent of GDP)	11.1	8.4
Overall outcome score	83.1	75.8
Efficiency ratio (outcomes/input)	7.5	10.2

* World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

Germany (DEU)

Country background

GDP per capita (2017 – USD)*	$44,469.91	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$4,591.85	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	11.2%	World Bank (2015)
Median age	45.9	UN (2015)
Average life expectancy	81.0	WHO (2016)
Healthy life expectancy	71.6	WHO (2016)
Infant mortality rate (per 1,000)	3.1	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Germany score	15-country average
Input (healthcare spend as a percent of GDP)	11.2	8.4
Overall outcome score	84.7	75.8
Efficiency ratio (outcomes/input)	7.6	10.2

India (IND)

Country background

GDP per capita (2017 – USD)*	$1,942.10	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$63.32	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	3.9%	World Bank (2015)
Median age	26.7	UN (2015)
Average life expectancy	68.8	WHO (2016)
Healthy life expectancy	59.3	WHO (2016)
Infant mortality rate (per 1,000)	32.0	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	India score	15-country average
Input (healthcare spend as a percent of GDP)	3.9	8.4
Overall outcome score	46.0	75.8
Efficiency ratio (outcomes/input)	11.8	10.2

*   World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

Italy (ITA)

Country background

GDP per capita (2017 − USD)*	$31,952.98	World Bank (2017)
Healthcare expenditure per capita (2015 − USD)**	$2,700.43	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	9.0%	World Bank (2015)
Median age	45.9	UN (2015)
Average life expectancy	82.8	WHO (2016)
Healthy life expectancy	73.2	WHO (2016)
Infant mortality rate (per 1,000)	2.9	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Italy score	15-country average
Input (healthcare spend as a percent of GDP)	9.0	8.4
Overall outcome score	90.0	75.8
Efficiency ratio (outcomes/input)	10.0	10.2

Netherlands (NLD)

Country background

GDP per capita (2017 − USD)*	$48,223.16	World Bank (2017)
Healthcare expenditure per capita (2015 − USD)**	$4,746.01	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	10.7%	World Bank (2015)
Median age	42.1	UN (2015)
Average life expectancy	81.6	WHO (2016)
Healthy life expectancy	72.1	WHO (2016)
Infant mortality rate (per 1,000)	3.3	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Netherlands score	15-country average
Input (healthcare spend as a percent of GDP)	10.7	8.4
Overall outcome score	87.3	75.8
Efficiency ratio (outcomes/input)	8.2	10.2

*   World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

Poland (POL)

Country background

GDP per capita (2017 – USD)*	$13,863.18	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$796.74	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	6.3%	World Bank (2015)
Median age	39.7	UN (2015)
Average life expectancy	77.8	WHO (2016)
Healthy life expectancy	68.5	WHO (2016)
Infant mortality rate (per 1,000)	4.0	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Poland score	15-country average
Input (healthcare spend as a percent of GDP)	6.3	8.4
Overall outcome score	77.6	75.8
Efficiency ratio (outcomes/input)	12.3	10.2

Russia (RUS)

Country background

GDP per capita (2017 – USD)*	$10,743.10	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$523.77	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	5.6%	World Bank (2015)
Median age	38.7	UN (2015)
Average life expectancy	71.9	WHO (2016)
Healthy life expectancy	63.5	WHO (2016)
Infant mortality rate (per 1,000)	6.5	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Russia score	15-country average
Input (healthcare spend as a percent of GDP)	5.6	8.4
Overall outcome score	69.4	75.8
Efficiency ratio (outcomes/input)	12.4	10.2

* World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

Saudi Arabia (SAU)

Country background

GDP per capita (2017 – USD)*	$20,849.29	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$1,194.10	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	5.8%	World Bank (2015)
Median age	29.8	UN (2015)
Average life expectancy	74.8	WHO (2016)
Healthy life expectancy	65.7	WHO (2016)
Infant mortality rate (per 1,000)	6.3	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Saudi Arabia score	15-country average
Input (healthcare spend as a percent of GDP)	5.8	8.4
Overall outcome score	77.9	75.8
Efficiency ratio (outcomes/input)	13.4	10.2

Singapore (SGP)

Country background

GDP per capita (2017 – USD)*	$57,714.30	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$2,280.28	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	4.3%	World Bank (2015)
Median age	40.0	UN (2015)
Average life expectancy	82.9	WHO (2016)
Healthy life expectancy	76.2	WHO (2016)
Infant mortality rate (per 1,000)	2.2	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	Singapore score	15-country average
Input (healthcare spend as a percent of GDP)	4.3	8.4
Overall outcome score	88.1	75.8
Efficiency ratio (outcomes/input)	20.5	10.2

* World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

South Africa (ZAF)

Country background

GDP per capita (2017 – USD)*	$6,151.08	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$470.80	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	8.2%	World Bank (2015)
Median age	26.1	UN (2015)
Average life expectancy	63.6	WHO (2016)
Healthy life expectancy	55.7	WHO (2016)
Infant mortality rate (per 1,000)	28.8	World Bank (2017)
Top cause of death	HIV/AIDS	IHME (2017)

Efficiency ratio

		South Africa score	15-country average
Input (healthcare spend as a percent of GDP)		8.2	8.4
Overall outcome score		37.1	75.8
Efficiency ratio (outcomes/input)		4.5	10.2

UK (GBR)

Country background

GDP per capita (2017 – USD)*	$39,720.44	World Bank (2017)
Healthcare expenditure per capita (2015 – USD)**	$4,355.81	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	9.9%	World Bank (2015)
Median age	40.2	UN (2015)
Average life expectancy	81.4	WHO (2016)
Healthy life expectancy	71.9	WHO (2016)
Infant mortality rate (per 1,000)	3.7	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	UK score	15-country average
Input (healthcare spend as a percent of GDP)	9.9	8.4
Overall outcome score	85.8	75.8
Efficiency ratio (outcomes/input)	8.7	10.2

* World Bank national accounts data, and OECD National Accounts data files. (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD)

** World Health Organization Global Health Expenditure database (http://apps.who.int/nha/database).

US (USA)

Country background

GDP per capita (2017 − USD)*	$59,531.66	World Bank (2017)
Healthcare expenditure per capita (2015 − USD)**	$9,535.95	WHO (2015)
Healthcare expenditure as a percentage of GDP (2015)	16.8%	World Bank (2015)
Median age	37.6	UN (2015)
Average life expectancy	78.5	WHO (2016)
Healthy life expectancy	68.5	WHO (2016)
Infant mortality rate (per 1,000)	5.7	World Bank (2017)
Top cause of death	Ischemic heart disease	IHME (2017)

Efficiency ratio

	US score	15-country average
Input (healthcare spend as a percent of GDP)	16.8	8.4
Overall outcome score	80.7	75.8
Efficiency ratio (outcomes/input)	4.8	10.2

Glossary of **terms**

Access to care: The ability to access medical care when needed.

Artificial intelligence (AI): The ability of a device/technology to copy intelligent human behaviors to assist with different tasks.

Availability of care: The doctor a patient needs to see is available when care is required.

Data privacy: Ensuring personal or private information about individuals or organizations is only collected and/or stored by those who have authorized access.

Data security: Protecting data against unauthorized access.

Digital health communication capabilities/tools: Technologies that allow a patient to communicate with its healthcare professional (e.g., through a patient portal, remote appointments, etc.)

DHRs: Digital health records can store a variety of health information, including medical history, test results, health indicators, etc. They can be used within a certain healthcare facility, across different healthcare facilities, by only the patient themselves, by one healthcare professional or across all healthcare professionals involved in a patient's care.

Digital health technology: Technology that enables sharing of information throughout all parts of healthcare (doctors, nurses, community nurses, patients, hospitals, specialists, insurers, and government). This technology can take a variety of forms, including, but not limited to: devices that track various health indicators such as heart rate or steps (e.g., wearables such as a smart watch/fitness trackers or home health monitoring devices); computer software that allows secure communication between doctors and hospitals (e.g., digital health records) or allows communication between doctors and patients (e.g., patient platforms); health devices that are internet enabled and transmit data.

Future Health Index: The Future Health Index (FHI) is a research based platform designed to help determine the readiness of countries to address global health challenges and build sustainable, fit for purpose, national health systems. In the context of ever growing pressure on resources and costs, the FHI focuses on the crucial role digital tools and connected care technology can play in delivering more affordable, integrated and sustainable healthcare. Since its inception in 2016, the FHI program has used credible research to derive actionable insights that have initiated dialogue across the industry, with the aim to drive change.

Healthcare: All areas of the health system a person might interact with, from visiting a general practitioner to emergency services and specialists.

Healthcare professional: All medical staff – including doctors, nurses, surgeons, radiologists, etc.

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

Telehealth: The use of electronic information, digital health technology or mobile health applications and telecommunications technologies to support long-distance exchange between healthcare professionals, patient and healthcare professional as well as health-related education, public health and health administration.

Value-based care: Value-based care describes a healthcare system that aims to increase access to care and improve patient outcomes at lower cost. It is a people-centric approach that spans the entire health continuum. In short, it is about providing the right care in the right place, at the right time and the right level of cost. At Philips, we also focus on improving the experiences of both the patient and the healthcare providers in line with the 'Quadruple Aim':

- Improved patient experience
- Better health outcomes
- Improved staff experience
- Lower cost of care

Methodology

Research overview and objectives

The Future Health Index is a research–based platform designed 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 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 explores technology's impact on two aspects of the **Quadruple Aim:** the healthcare experience for both patients and healthcare professionals and how it is moving us to a new era of **continuous transformation.**

The Future Health Index 2019 analyzes 15 countries (Australia, Brazil, China, France, Germany, India, Italy, Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Poland, the United Kingdom and the United States of America).

1. Each data source approaches data collection for China differently. Some include Taiwan and/or Hong Kong, others treat them separately. For the purposes of this research, when third–party data has been used, we have not adjusted the data from the way it was collected. As such the data is reflective of each source's approach to measuring China. Survey data is representative of Mainland China only and does not include Taiwan or Hong Kong.

Methodology

Survey methodology

2019 data

In partnership with IPSOS and SERMO, independent global market research firms, the surveys were fielded from March 4 to May 19, 2019 in 15 countries (Australia, Brazil, China, France, Germany, India, Italy, The Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Poland, U.K. and U.S.) in their native language. The survey was conducted online and offline (as relevant to the needs of each market) with a sample size of 1,000 per market for the general population and 200 per market for healthcare professionals. The exceptions were the US and Germany, who each had slightly larger samples of healthcare professionals. For the individuals (general population) audience, the survey is representative of key demographics e.g. age, gender, region, location type (i.e. rural/urban), income/SEL/education and ethnicity (where appropriate to ask). This was achieved through a mix of balancing and weighting. In Saudi Arabia and Brazil, the survey is nationally representative of the online population. The survey length was approximately 15 minutes for the US, Germany, and the Netherlands, and approximately 10 minutes for the remaining markets.

The total sample from the survey includes:

- **3,194 healthcare professionals** (defined as those who work in healthcare as a doctor, surgeon, nurse practitioner, registered nurse, licensed practical nurse or nurse across a variety of specializations)

- **15,114 individuals** (representative of each country's respective adult population).

- **At the 95% confidence level,** the 15-country total for the general population has a margin of error at +/– 0.8 percentage points and the 15-country total for the healthcare professional population has an estimated margin of error of +/– 1.7 percentage points.

Methodology

Survey methodology continued

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

	General population			Healthcare professional		
	Unweighted sample size (N=)	Margin of error (percentage points)	Interview methodology	Unweighted sample size (N=)	Margin of error (percentage points)	Interview methodology
15-country total	**15,114**	**+/-0.8**	**Online, face-to-face**	**3,194**	**+/-1.7**	**Online**
Australia	1,003	+/-3.1	Online	204	+/- 6.9	Online
Brazil	1,007	+/-3.1	Online	203	+/- 6.9	Online
China	1,046	+/-3.0	Online, face-to-face	202	+/- 6.9	Online
France	1,004	+/-3.1	Online	205	+/- 6.8	Online
Germany	1,004	+/-3.1	Online	206	+/- 6.8	Online
India	1,007	+/-3.1	Online, face-to-face	200	+/- 6.9	Online
Italy	1,004	+/-3.1	Online	201	+/- 6.9	Online
Netherlands	1,006	+/-3.1	Online	203	+/- 6.9	Online
Poland	1,000	+/-3.1	Online	202	+/- 6.9	Online
Russia	1,013	+/-3.1	Online, face-to-face	211	+/- 6.8	Online
Saudi Arabia	1,007	+/-3.1	Online	201	+/- 6.9	Online
Singapore	1,003	+/-3.1	Online	201	+/- 6.9	Online
South Africa	1,007	+/-3.1	Online, face-to-face	200	+/- 6.9	Online
UK	1,000	+/-3.1	Online	202	+/- 6.9	Online
US	1,003	+/-3.1	Online	203	+/- 6.9	Online

*Germany's core sample (comparable to other countries) is 206. The 15-country average, regional numbers that include Germany or any Germany specific numbers are based on 206. However, an additional 75 nurses and caregivers were surveyed and, where relevant, are referenced in any local reporting about Germany.

*The US' core sample (comparable to other countries) is 203. The 15-country average, regional numbers that include the US or any US specific numbers are based on 203. However, an additional 75 healthcare professionals from large hospitals were surveyed and, where relevant, are referenced in any local reporting about the US.

Weighting

Local market weighting (general population only):

For the general population sample, all countries were weighted to be representative of the national population based on census statistics (where available) for key demographics. The weighting was applied to ensure the sample is representative of individuals age 18+ in each country. In Brazil and Saudi Arabia, the sample is representative of the online population in these countries.

Total country weighting (healthcare professionals and general population):

The 15-country average is an average calculation with each country's sample size weighted to have the same value to ensure each country has an equal weight in this total. The same was done for all regional totals.

For a full list of sources visit:

https://www.philips.com/a-w/about/news/future-health-index/research-methodology.html