future health index 2020

The age of **opportunity**

Empowering the next generation to **transform healthcare**

Saudi Arabia

The Future Health Index is commissioned by Philips

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Context

The research for the Future Health Index 2020 report was conducted in November and December 2019 during the onset of the COVID-19 pandemic, painting a **realistic picture of the state of healthcare systems** on the eve of the crisis. The report findings demonstrate that even before the pandemic, healthcare was in need of radical change. **Younger healthcare professionals have experienced significant stress and new responsibilities in recent months.**

The Future Health Index 2020 report is a valuable tool in helping us to uncover the needs of this next generation of healthcare professionals and, in doing so, establish where **changes can be made** to meet them.

The age of **opportunity**

Jan Kimpen, Philips Chief Medical Officer

We stand at a critical point in healthcare.
The world's healthcare systems are facing unprecedented challenges from both growing and aging populations and an increasingly burnt-out workforce.

Physicians, nurses and support staff are juggling the challenges of patient care with increased administration, while managers deal with staffing issues and increasing pressure to reduce costs. Those working in healthcare face professional and personal stress.

But there is opportunity.
The current generation of younger professionals will soon make up the majority of our global healthcare workforce. They have the responsibility – and the privilege – of delivering the changes that are needed to ensure healthcare systems are fit for purpose. Value-based care is the ultimate aspiration of this, delivered through the Quadruple Aim of better health outcomes, improved patient and staff experience, and lower cost of care.

The burden of expectation to transform healthcare lies on this group's shoulders, but too often their views are not widely understood. The Future Health Index 2020 report explores this generation's expectations around technology, training and job satisfaction, and the reality of their experience as healthcare professionals.

Their responses are revealing and inspiring.
These younger healthcare professionals are dedicated to their patients and their careers and are driven by a desire to help others.

But they are concerned by the administrative demands that deflect from their core duties, and frustrated by what they perceive as the slow pace of technological change.

These are warning signs that need to be addressed at all levels to avoid paying the price later. We cannot afford for these talented professionals to become disengaged or we risk losing their skills and commitment to the sector.

Technology has the power to transform delivery, improve patient care, provide work satisfaction and drive value-based care. It presents a platform to address the high costs and waste that destabilize budgets.

It also gives younger healthcare professionals the ability to shape future healthcare systems with care at the core.

The report findings are relevant across healthcare – from junior staff to senior management – and herald a dynamic future. I urge healthcare leaders to absorb these valuable insights and to consider how they can be applied within their own hospital or practice.

This is the age of **opportunity.**

Future Health Index 2020 report: **research premise**

In its fifth year, the Future Health Index 2020 report is based on **proprietary research across 15 countries.**

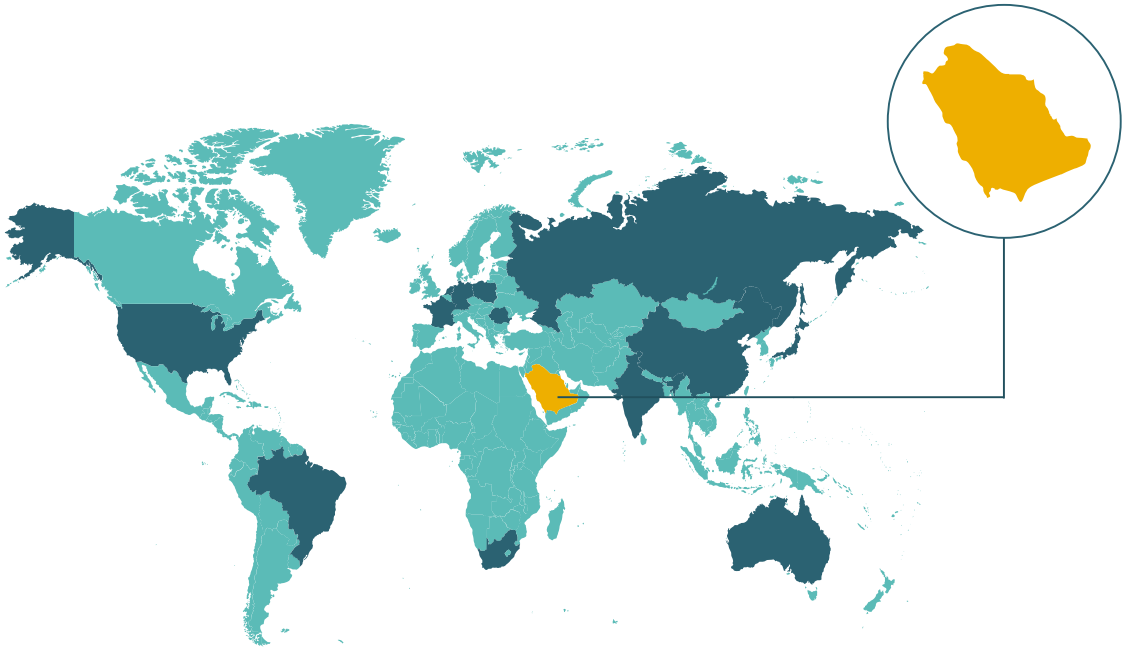
The research explores how to support and empower the next generation of healthcare professionals* and leaders who will **deliver tomorrow's healthcare,** specifically exploring their perceptions of today's reality and the role technology plays in supporting them to deliver better care.

This is the first global survey of its kind focused on the **next generation** of healthcare professionals.

Responses from almost

3,000

younger healthcare professionals across 15 countries**



Countries included in the research

1. Australia
2. Brazil
3. China
4. France
5. Germany
6. India
7. Japan
8. Netherlands
9. Poland
10. Romania
11. Russia
12. **Saudi Arabia**
13. Singapore
14. South Africa
15. United States of America

*Includes all medical staff under the age of 40.
**Includes 201 younger healthcare professionals in Saudi Arabia.

Exploring the gaps in **healthcare education** and **training**

In recent years, the Saudi Ministry of Health has invested heavily in digital health technology adoption and improving healthcare access*. The impact of this investment was reflected in the Future Health Index 2019 report**, with Saudi Arabia standing out for its willingness to adopt and integrate new technologies. This same desire to embrace healthcare technology is also evident in the Future Health Index 2020 report, as Saudi Arabia's younger healthcare professionals appear to be well positioned for the future. This cohort often leads the way compared to their peers in the other countries surveyed. That said, some challenges still stand in the way of younger healthcare professionals in Saudi Arabia being even more effective.

- **Skills gap.** In contrast to those in most of the countries surveyed, a majority of younger healthcare professionals in Saudi Arabia feel their medical education prepared them for the non-clinical aspects of their careers. In fact, they are among the least likely, along with those in countries including Singapore and China, to say their medical education did not prepare them for various non-clinical skills. Additionally, younger healthcare professionals in Saudi Arabia report among the highest levels of continuous education from their hospitals or practices for many of these key non-clinical skills. However, since about half are still not provided this continuous education, there is an opportunity to further increase this.
- **Knowledge gap.** Health systems worldwide are beginning to shift towards value-based care and younger healthcare professionals in Saudi Arabia are among the most prepared to make that shift. While most are still using some volume measures in their practice or hospital, they appear to be among the most prepared with some of the highest levels of knowledge about value-based care across all countries surveyed. This knowledge should help ease the transition to value-based care in Saudi Arabia in the coming years.
- **Data gap.** Saudi Arabia's younger healthcare professionals are more likely than the average of their peers across all of the countries surveyed to report feeling overwhelmed by data. They also report that sharing restrictions often result in incomplete digital patient data. This possibly stands in the way of utilizing patient data to its fullest extent. To address the situation, this generation wants training around data and dedicated staff to manage and analyze data.

*https://www.moh.gov.sa/en/Ministry/nehs/Pages/default.aspx
**Future Health Index. (2019). Base (unweighted): Total healthcare professionals (Saudi Arabia n=201)

The **skills** gap

Saudi Arabia is **leading the way** in preparing younger healthcare professionals for modern healthcare

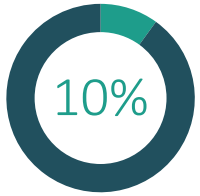
Saudi Arabia has strong medical education, with smaller than average gaps in non-clinical skills.

Compared to peers in the other countries surveyed, younger healthcare professionals in Saudi Arabia are among the least likely to feel their medical education did not prepare them at all for several key non-clinical skills. This is particularly true in relation to business administration tasks, the adoption of new technologies, data privacy regulations and driving efficiencies.

Percentage who feel their medical education did **not prepare** them at all for:

Implementation and adoption of new technologies

16% 15-country avg.



Business administration tasks

44% 15-country avg.

3%

Data privacy and regulations

16% 15-country avg.

5%

Driving efficiencies within their hospital or practice

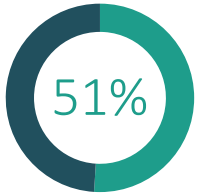
25% 15-country avg.

Saudi Arabia is also setting the standard in providing continuous education in non-clinical skills, though further room for growth exists.

In addition to saying they were taught key non-clinical skills during medical school, younger healthcare professionals in Saudi Arabia say they get support from their hospitals or practices via continuous education. In fact, this group is more likely than the average of their peers across the countries surveyed to report receiving continuous education across all non-clinical skills tested.

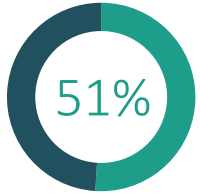
However, while many younger healthcare professionals in Saudi Arabia receive continuous education for skills such as business administration tasks, driving efficiencies, tech adoption and data privacy, about half are still not receiving this, putting them at risk of being left behind.

Percentage who say their hospital or practice provides **continuous education** as needed for:



Implementation and adoption of new technologies

43% 15-country avg.



Business administration tasks

37% 15-country avg.

56%

Data privacy and regulations

47% 15-country avg.

50%

Driving efficiencies within their hospital or practice

39% 15-country avg.

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

The **knowledge** gap

Knowledge of **value-based care** is among the highest in Saudi Arabia

Perhaps driven by its commitment to advancing healthcare, Saudi Arabia is a leader in knowledge of value-based care*.

Over the past few years, the Saudi government has invested heavily in healthcare**, including a national e-Health strategy to encourage the adoption of digital health technologies and the Saudi Vision 2030^. Potentially, this focus on advancing healthcare has contributed to younger healthcare professionals in Saudi Arabia having among the highest awareness of value-based care of all of the countries surveyed. On the other hand, there is still ample opportunity to raise awareness since about half of younger healthcare professionals in Saudi Arabia claim limited knowledge of the concept. Until there is more widespread understanding, shifting models from volume-based to value-based may prove challenging.

49% only knew it **by name, knew a little or knew nothing at all about it**

51% knew **a lot about it**

(Those who had limited or no knowledge of value-based care prior to taking the survey):

78% 15-country avg.

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

**https://www.moh.gov.sa/en/Ministry/nehs/Pages/default.aspx

^https://vision2030.gov.sa/en

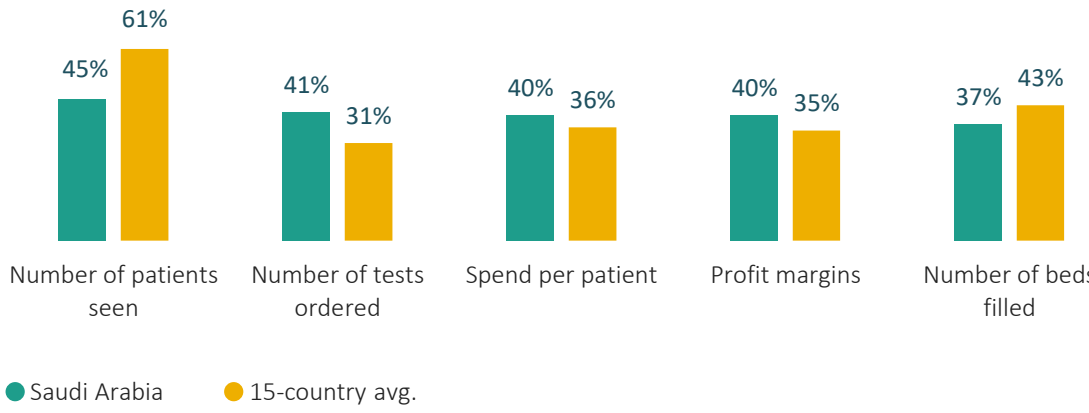
Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Most younger healthcare professionals in Saudi Arabia use both volume and value metrics, resulting in mixed messages in terms of how care should be measured.

Some Saudi Arabian hospitals and practices are using value-based measures. However, the vast majority are also still using volume-based metrics, such as tests ordered and spend per patient.

91% of younger healthcare professionals in Saudi Arabia say their hospitals or practices **use volume-based measures**

The percentage of **hospitals and practices** using these volume-based performance measures:



The **data** gap

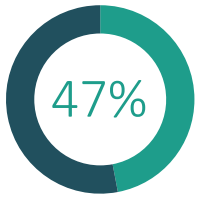
Younger healthcare professionals are **struggling with incomplete and overwhelming data**

While Saudi Arabia has embraced the adoption of technology, barriers remain to those advancements being used to their fullest potential.

Younger healthcare professionals in Saudi Arabia are less likely than the average of their peers across all of the countries surveyed to say that sharing restrictions result in incomplete data. However, they are more likely to report feeling overwhelmed by the amount of data. About half also agree they don't have enough patient data to influence outcomes. To ensure medical technology is leveraged to its fullest extent, creating systems that allow for the sharing of correct and holistic data may be helpful.

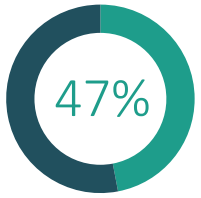
Agree **sharing restrictions** often result in incomplete digital patient data

64% 15-country avg.



Are overwhelmed by the amount of digital patient data

35% 15-country avg.



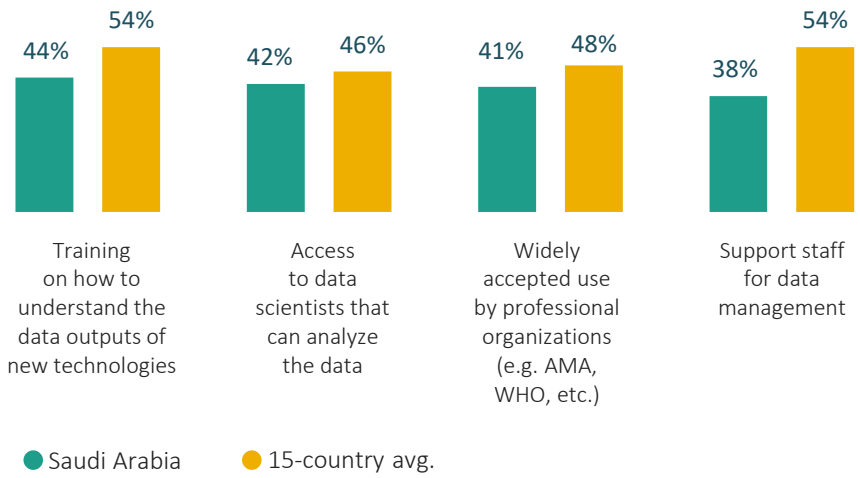
Don't have enough patient data to influence outcomes

53% 15-country avg.

Saudi Arabia's younger healthcare professionals want experts to help analyze their digital patient data.

While interested in learning to understand data on their own, this generation would also like support staff to manage data and access to data scientists to help them analyze it.

Resources that would be helpful to ensure younger healthcare professionals are able to use **digital patient data** most effectively:



Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Harnessing technology to help transform healthcare

Saudi Arabia is hurtling towards greater digital transformation in medicine. Following the announcement of King Salman bin Abdulaziz Al-Saud's 2030 vision* to improve healthcare in Saudi Arabia, the country's healthcare system has been rapidly digitalized. As a result, almost all (89%) younger healthcare professionals work in digital or smart hospitals. However, these resources may not always be used to their full potential. Younger healthcare professionals in Saudi Arabia still want and need support to understand and utilize patient data to ensure the best outcomes.

- **Technology's role in improving patient care.** Younger Saudi healthcare professionals are excited about the possibilities of aggregated anonymous patient data. Nearly all agree that the societal benefits of anonymized data outweigh the risks. They are also hopeful that technology can improve their patients' experiences.
- **Laying the foundation for improved patient care.** Most younger healthcare professionals in Saudi Arabia work in smart or digital hospitals or practices. Accordingly, while portable diagnostic capabilities and digital health records top the list of the most beneficial advancements in medical care, this generation also sees the potential benefits of artificial intelligence, 5G and augmented reality.
- **Technology's role in healthcare professionals' satisfaction.** Younger healthcare professionals in Saudi Arabia want technology to take care of basic tasks so they don't have to. For example, they are more likely than most of their peers in the other countries surveyed to say chat bots answering simple medical questions would improve their job satisfaction. Nearly all agree that technology has the potential to reduce their workload and stress levels.
- **The power of data sharing.** Almost all younger healthcare professionals in Saudi Arabia say they work in hospitals willing to embrace new technology. However, barriers remain. This generation points to regulations hindering data sharing and calls for more open access of anonymized data to harness the fullest potential of technology in medicine.

*https://vision2030.gov.sa/en

Technology's role in improving patient care

Younger healthcare professionals believe in the **potential of patient data** to transform care

In line with the country's 2030 Vision* to advance its healthcare system, younger healthcare professionals in Saudi Arabia are strong advocates of the role patient data can play in improving patient care.

This generation in Saudi Arabia is more likely than those in most of the other countries surveyed to agree that the benefit of anonymized patient data outweighs the perceived risks, suggesting a real desire to harness data in their practice.

96%

agree the societal benefits of improved patient care from the use of anonymized health data outweigh the perceived data privacy concerns to the individual

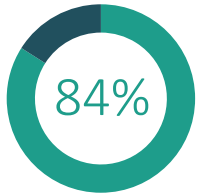
78% 15-country avg.

*https://vision2030.gov.sa/en

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Saudi Arabia's younger healthcare professionals are invested in the potential of patient data and are ready to pioneer its use.

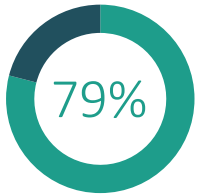
Younger healthcare professionals in Saudi Arabia are more likely than the average of their peers in the other countries surveyed to agree that digital health technologies have the potential to improve patient experiences and increase time for clinicians with patients.



84%

They [digital health technologies] **will improve patients' experiences**

74% 15-country avg.

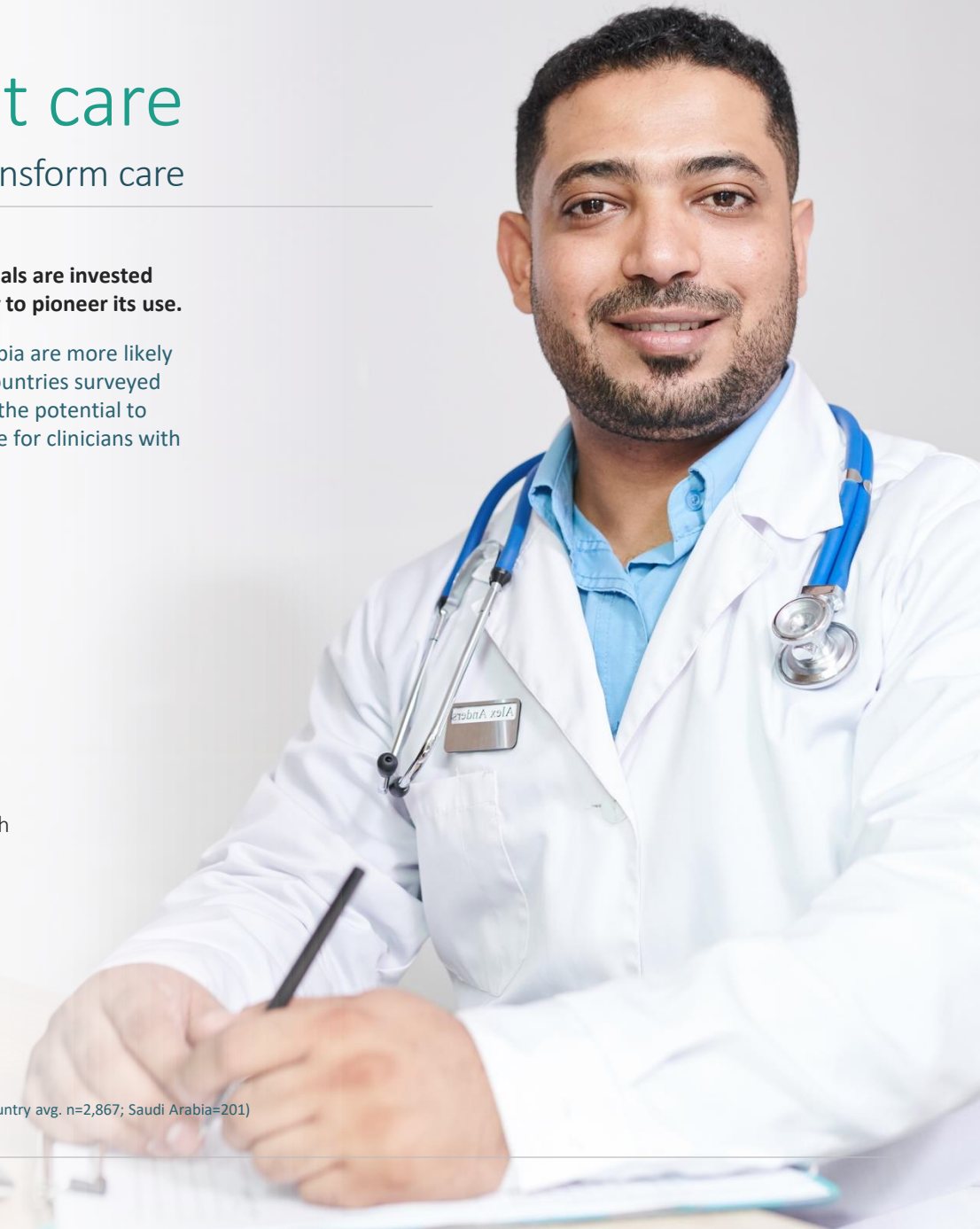


79%

Using them [digital health technologies] **means more time for me to spend with patients**

64% 15-country avg.

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)



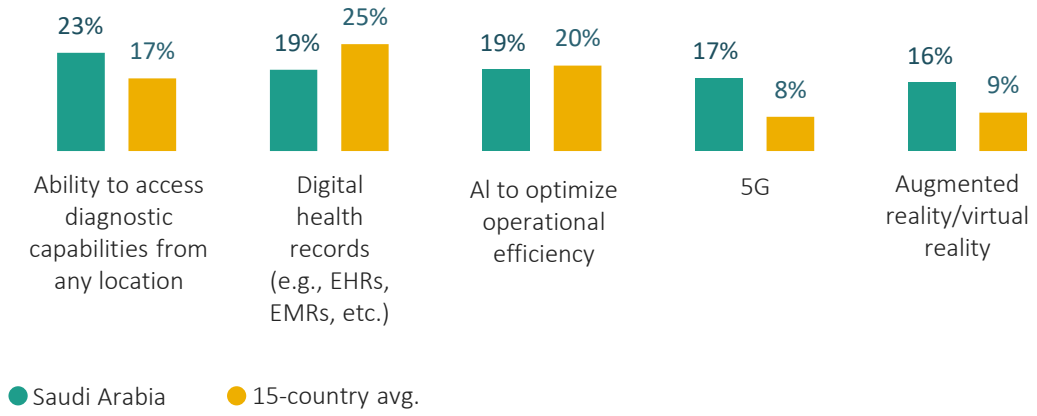
Laying the foundations for improved patient care

Digital health technologies that support **data portability** are seen as the most beneficial to enhancing care

The ability to access diagnostic capabilities from any location tops the list of digital health technologies to improve patient care during the next five years.

In addition to portability, younger healthcare professionals in Saudi Arabia are more likely than many of their peers in the other countries surveyed to agree that both 5G and augmented or virtual reality have the potential to improve patient care over the next five years.

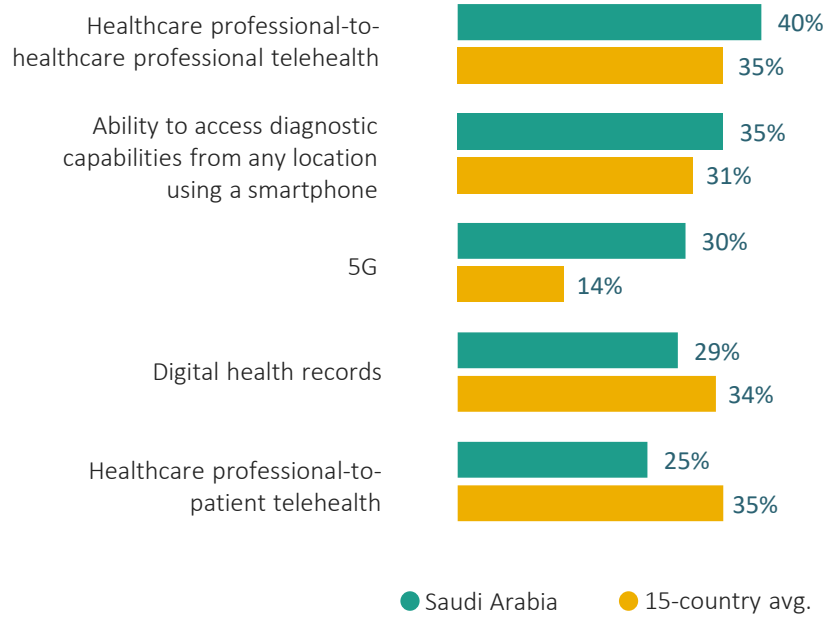
The digital technologies that would be most beneficial for **improving patient care** during the next five years:



Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Consistent with being at the forefront of adoption of medical technology, younger healthcare professionals in Saudi Arabia are more likely than most of their peers that were surveyed to believe that 5G is necessary for remote treatment.

Healthcare professional-to-healthcare professional telehealth and the ability to access diagnostic capabilities from any location using a smartphone top the technologies younger healthcare professionals say are necessary for them to feel confident treating patients remotely. Younger healthcare professionals in Saudi Arabia are also more likely than most of their peers to cite 5G as necessary to treat patients remotely.

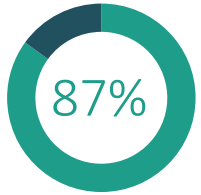


Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Technology's role in healthcare professionals' satisfaction

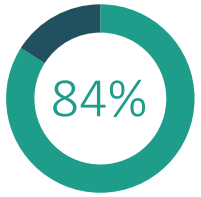
Younger Saudi healthcare professionals want technology to **streamline** and **handle basic tasks**

Beyond using technology to advance patient care, younger healthcare professionals in Saudi Arabia also envision it reducing their workload and stress.



The right technologies have the **potential to reduce my workload**

81% 15-country avg.



I expect the adoption of the right technologies to **decrease my stress levels**

67% 15-country avg.

Saudi Arabia's innovative leadership in the adoption of medical technology is also reflected by its younger healthcare professionals.

This generation is willing to use unconventional solutions, such as chat bots, to redirect valuable clinician time. Those in Saudi Arabia are more likely than peers in every country except Japan, Singapore and South Africa to cite chat bots as having potential to improve their satisfaction.

20%

agree that **chat bots** to provide patients with answers to basic medical questions via automated service has the potential to most improve their satisfaction

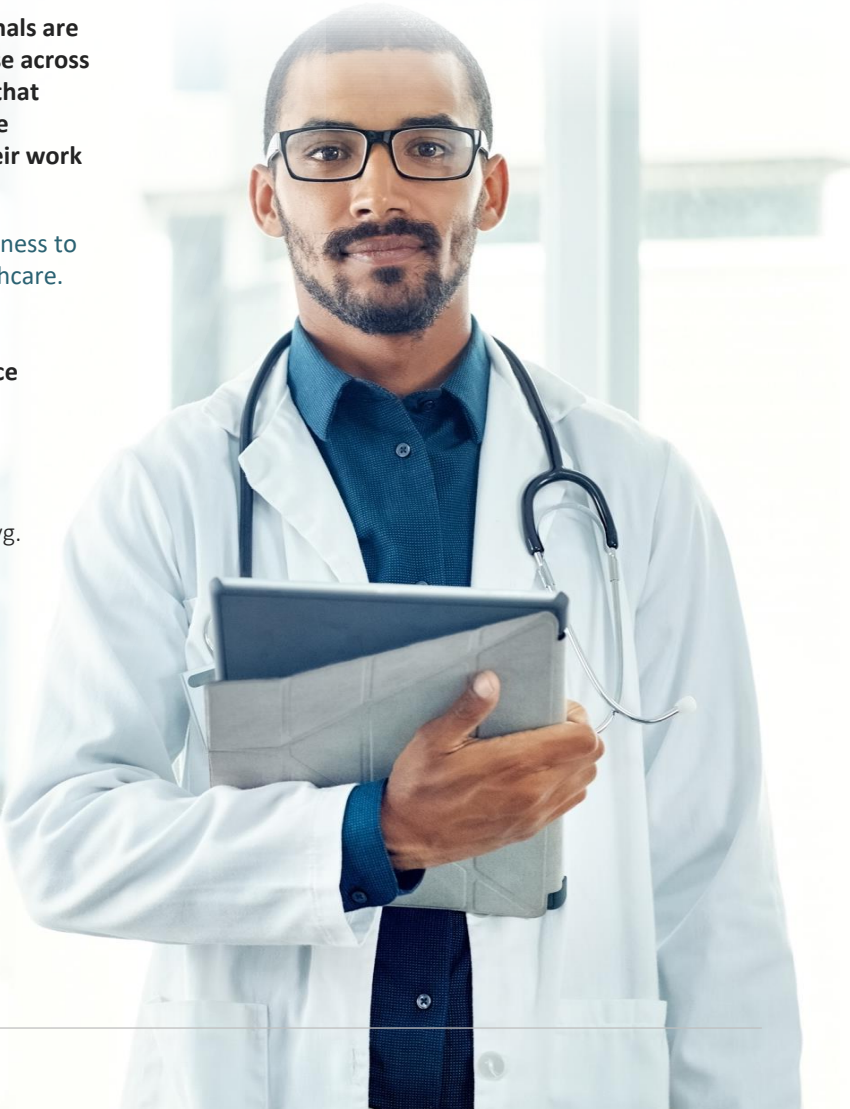
8% 15-country avg.

Younger Saudi healthcare professionals are more likely than the average of those across all of the countries surveyed to say that artificial intelligence (AI) to integrate diagnostics would most improve their work satisfaction.

This aligns with Saudi Arabia's willingness to adopt new technologies within healthcare.

Artificial intelligence (AI) to integrate diagnostics

26% 15-country avg.



Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

The power of **data sharing**

A **lack of data sharing** stands in the way of maximizing efficiency

Consistent with the country's investment in digital health technologies in recent years, almost all younger Saudi healthcare professionals say they work in hospitals that are open to new technology.

Younger healthcare professionals in Saudi Arabia are among the most likely of those surveyed to agree that their hospital or practice is willing to embrace technology.

The percentage of hospitals or practices willing to **embrace technology:**

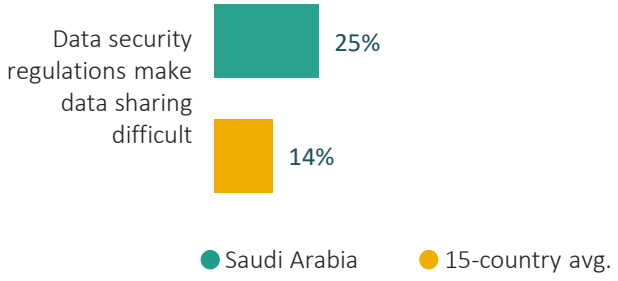
94%

78% 15-country avg.

However, data security regulations make data sharing more difficult.

Younger healthcare professionals in Saudi Arabia are more likely than the average of those across the countries surveyed to report that data security regulations make data sharing difficult. As a result, they may not have access to all of the information they need to make informed care decisions.

Barrier to embracing technology at hospitals or practices:



Providing more open access to data is key to maximizing its potential usefulness.

On par with their peers in all of the countries surveyed, a significant amount of younger healthcare professionals in Saudi Arabia believe there is a real need for more open access to anonymized data.

40%

believe **more open access to anonymized data** needs to be improved to ensure healthcare data is utilized to its fullest potential

38% 15-country avg.

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Creating the ideal healthcare **working environment**

Younger healthcare professionals in Saudi Arabia see more patients than the average of those across the countries surveyed, but also report near-universal job satisfaction. As Saudi Arabia works to achieve the health goals set out in the 2030 Saudi Vision*, more and more hospitals have been digitized. This may be driving the country's high levels of job satisfaction, as across the countries surveyed, younger healthcare professionals who work in smart or digital hospitals tend to report higher levels of job satisfaction. However, working in technologically-advanced hospitals or practices may not be enough. As the industry continues to change rapidly, employers need to consider the needs of this generation in order to keep them engaged, and in the profession.

- **Flexibility first.** Younger healthcare professionals in Saudi Arabia see far more patients than the average of those across the countries surveyed. This potentially drives their interest in digital health solutions as a way of managing their workload. Although they have an interest in technology, they are experiencing high levels of work-related stress, which in turn may contribute to them considering leaving the profession.

- **Selecting a supportive workplace.** Given both the high patient load young Saudi healthcare professionals face and their interest in digital health technologies, it's no surprise that they cite working hours, availability of the latest technology and a culture of collaboration as important factors when choosing a workplace. There is also a fast pace of digitization in Saudi Arabia, which may lead to cutting edge technology being important to this generation.

- **Engaging the workforce of the future.** The vast majority of younger healthcare professionals in Saudi Arabia feel excited about the future of their profession because of advancements in medical technology. As Saudi Arabia's hospital system rapidly digitizes, this openness could lead to easier adoption and implementation of new technologies. Harnessing this enthusiasm by providing the latest technologies will no doubt help maintain or improve their job satisfaction.

- **Transformational change has internal barriers.** Younger healthcare professionals in Saudi Arabia look to digital health technologies to alleviate the burden of administrative tasks**.** While they are more likely than those in any of the countries surveyed (except Singapore) to feel empowered to drive change, concerns remain about autonomy, administrative burden and unsustainable workload.

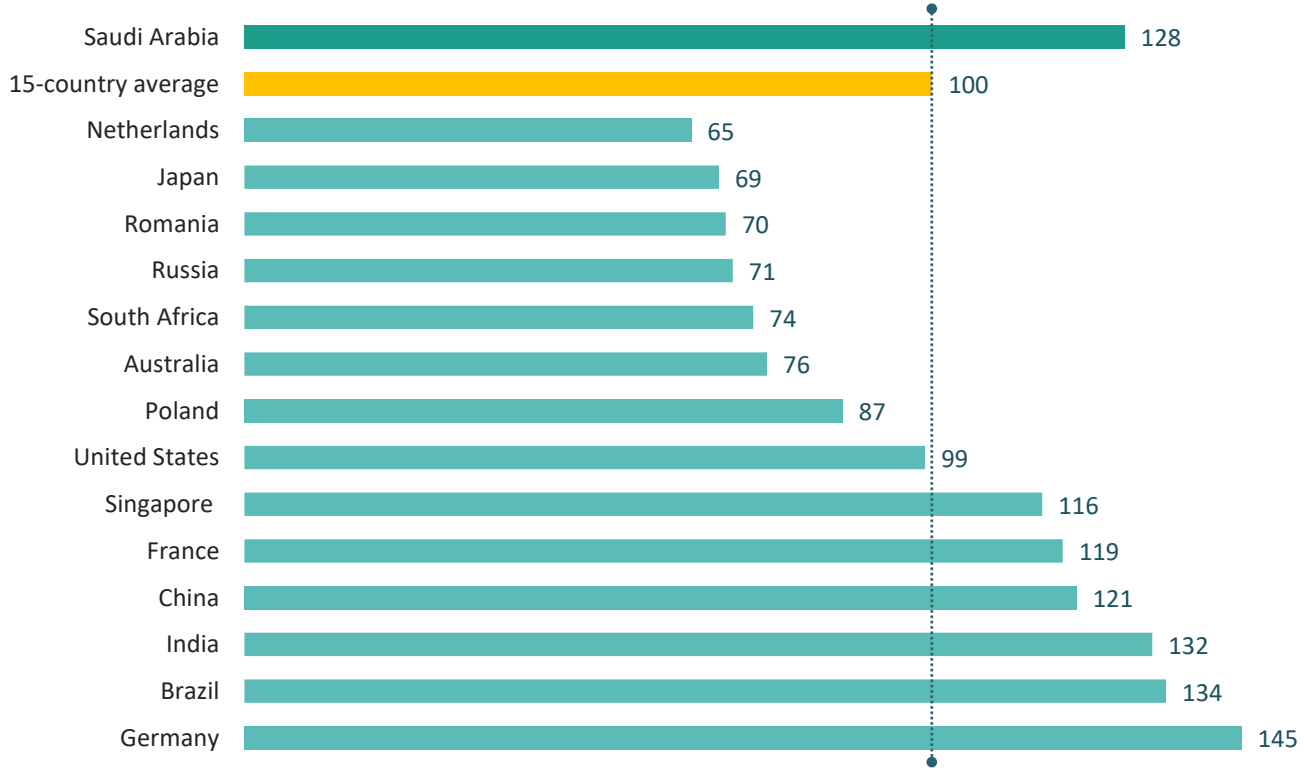
*https://vision2030.gov.sa/en

Flexibility first

High patient volumes can lead to work-related stress

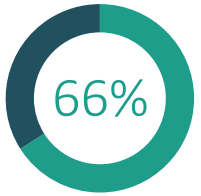
Younger Saudi healthcare professionals see more patients than most of their counterparts in the other countries surveyed. This could potentially be driving some of them to consider leaving the medical profession.

Average **patients seen** by younger healthcare professionals (per week) by country:



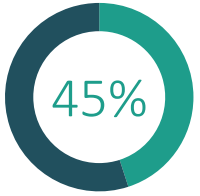
Additionally, younger Saudi healthcare professionals say they are regularly experiencing high levels of stress, which may contribute to the consideration of leaving the healthcare profession.

Younger healthcare professionals in Saudi Arabia regularly experience work-related stress. Also, more than the average of those across all the countries surveyed, they have considered leaving the healthcare profession as a result of the stress they feel. Despite this, only 4% say that their medical education did not prepare them at all for stress management. However, roughly half (48%) say they receive continuing education in stress management, suggesting a possible point of intervention.



Regularly experience **work-related stress**

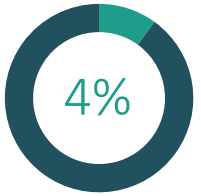
74% 15-country avg.



Considered leaving the healthcare profession as a result of work-related stress

34% 15-country avg.

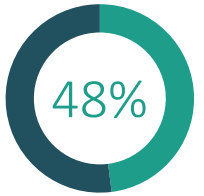
Percentage who feel their medical education did **not prepare** them at all for:



Managing stress/pressure of being a healthcare professional

23% 15-country avg.

Percentage who say their hospital or practice provides **continuous education** as needed for:



Managing stress/pressure of being a healthcare professional

34% 15-country avg.

Base (unweighted): Total younger healthcare professionals (n=2,867); Australia (n=150), Brazil (n=203), China (n=201), France (n=202), Germany (n=200), India (n=202), Japan (n=202), Netherlands (n=201), Poland (n=201), Romania (n=202), Russia (n=200), Saudi Arabia (n=201), Singapore (n=100), South Africa (n=201), United States of America (n=201)

Selecting a **supportive workplace**

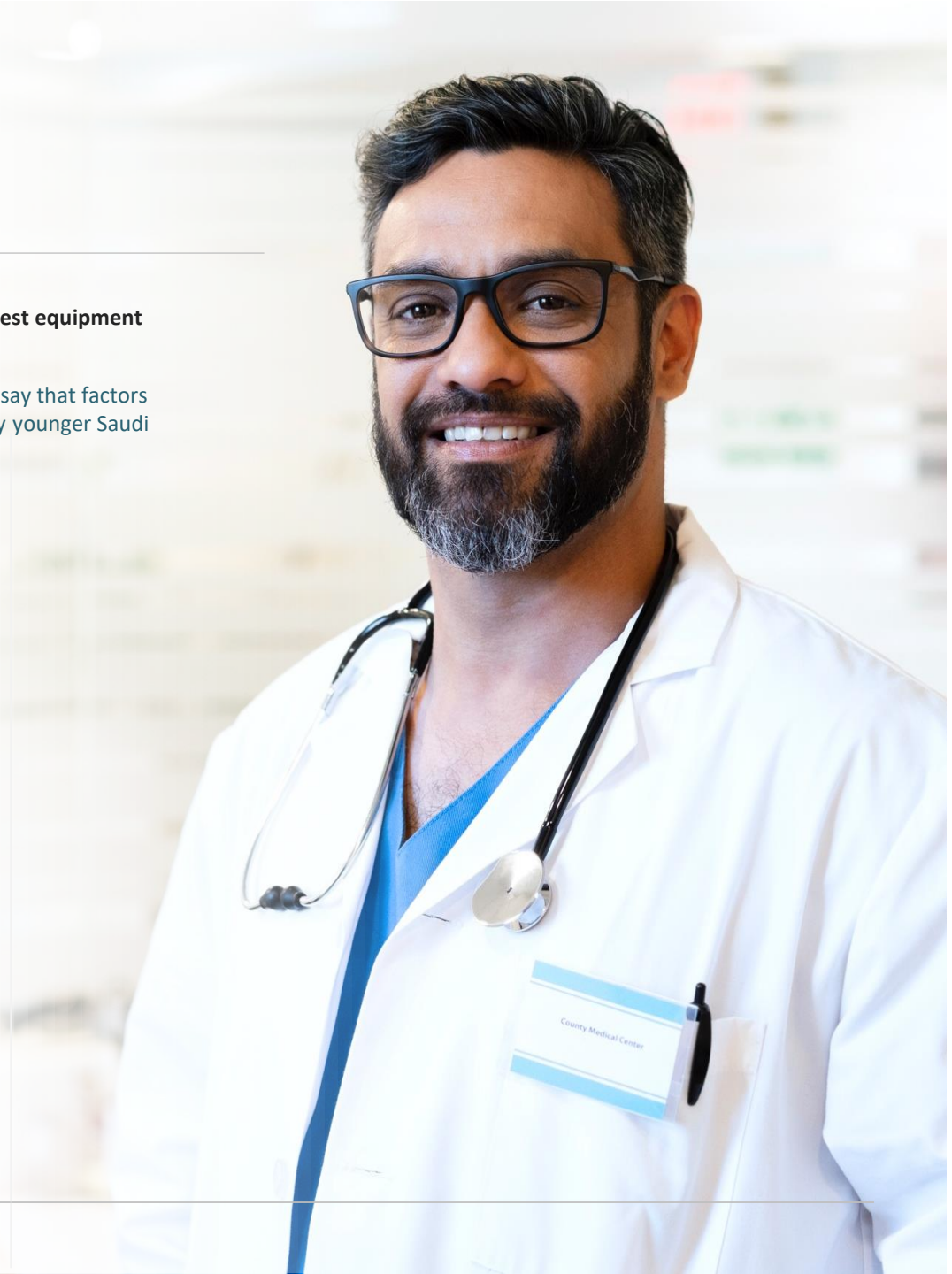
When choosing where to work, **culture** and the **latest technology** top the list

Given Saudi Arabia's strong record of digital health technology adoption and implementation, this generation considers the latest equipment and technology to be important when job-seeking. However, culture is equally important.

Younger healthcare professionals in Saudi Arabia are more likely than the average of those across all of the countries surveyed to say that factors around workplace culture and the latest equipment and technology are important when choosing a workplace. Additionally, many younger Saudi healthcare professionals agree that the availability of the latest equipment and technologies is important.

	15-country avg.		Saudi Arabia	
Workplace culture	90%	A culture of collaboration: **68%** Professional autonomy: **66%**	96%	A culture of collaboration: **73%** Professional autonomy: **70%**
Latest equipment/ technology	86%	Availability of the latest medical equipment and technologies: **71%** Availability of technology for everyday tasks: **56%**	95%	Availability of the latest medical equipment and technologies: **77%** Availability of technology for everyday tasks: **70%**
Reputation	81%	The hospital or practice's reputation: **56%** Strong record of patient outcomes: **56%**	91%	The hospital or practice's reputation: **65%** Strong record of patient outcomes: **60%**
Work-life balance	87%	Working hours: **72%** Culture supports work-life balance: **71%**	89%	Working hours: **77%** Culture supports work-life balance: **67%**

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

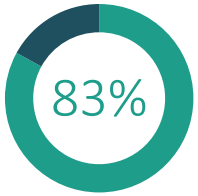


Engaging the **workforce of the future**

Digital health technologies could be an important motivator

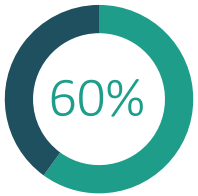
The vast majority of younger healthcare professionals in Saudi Arabia are excited about advancements in medical technology and what it means for the future of healthcare.

Most of the younger healthcare professionals in Saudi Arabia agree that new technologies are important for their work. They are also more likely than many of their peers in the other countries surveyed to agree that advancements in medical technology make them excited about the future of the profession. This is in line with the enthusiasm for the adoption of technologies seen in the 2017* and 2019^ Saudi-specific Future Health Index results.



agree that **advancements in medical technology make me excited** about the future of the healthcare profession

72% 15-country avg.



agree that the **implementation and adoption of new technologies** is important for their work

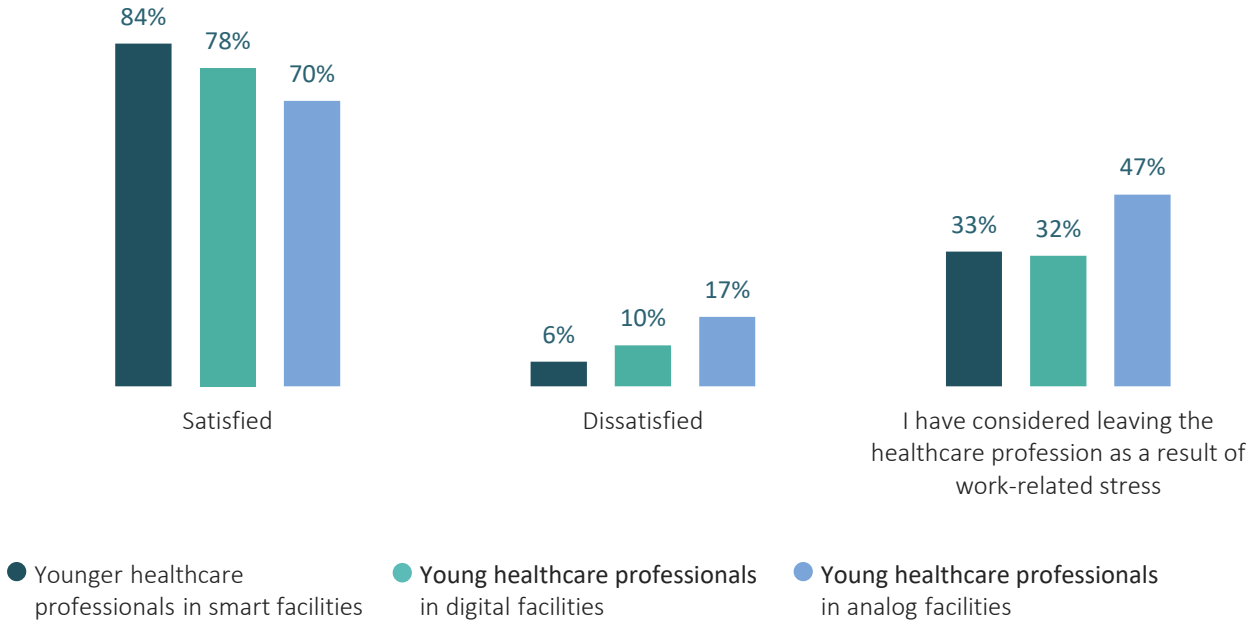
68% 15-country avg.

*Future Health Index. (2017). Base (unweighted): Total healthcare professionals (Saudi Arabia n=206)
^Future Health Index. (2019). Base (unweighted): Total healthcare professionals (Saudi Arabia n=201)

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

Across the countries surveyed, advancements in digital health technologies contribute to higher levels of job satisfaction.

Throughout the countries surveyed, younger healthcare professionals who work in smart or digital facilities are more satisfied with their work as a healthcare professional than those in analog facilities. Further, those in analog facilities are more likely to have considered leaving the healthcare profession. As 11% of younger healthcare professionals in Saudi Arabia report still working in analog facilities, their satisfaction could improve from further adoption of technology.



Base (unweighted): Total younger healthcare professionals (n=2,867), total younger healthcare professionals working in a smart hospital/practice (n=672), total younger healthcare professionals working in a digital hospital/practice (n=1,790), total younger healthcare professionals working in an analog hospital/practice (n=399)

Transformational change has **internal barriers**

Younger Saudi healthcare professionals are among the most likely **to feel empowered** to drive change, but frustrations remain

Younger healthcare professionals in Saudi Arabia feel more empowered to drive change than those in any other country surveyed, except Singapore. This could be due to Saudi Arabia's access to technology, as well as the younger generation's comfort with adopting new technologies.

87%

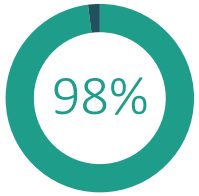
of younger healthcare professionals in Saudi Arabia **feel they are able to drive change** in how their hospital or practice is managed

53% 15-country avg.

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

This level of empowerment may be leading this generation to generate positive word of mouth around the profession.

They are more likely than those in any other country surveyed to report they are likely to recommend medicine as a profession.



of younger healthcare professionals in Saudi Arabia say **they would recommend medicine as a career**

67% 15-country avg.

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)

However, feeling empowered to drive change doesn't necessarily translate to patient care.

They are more likely than the average of those across all the countries surveyed to say they lack flexibility in patient treatment. Additionally, a quarter are concerned about increased administrative burden.

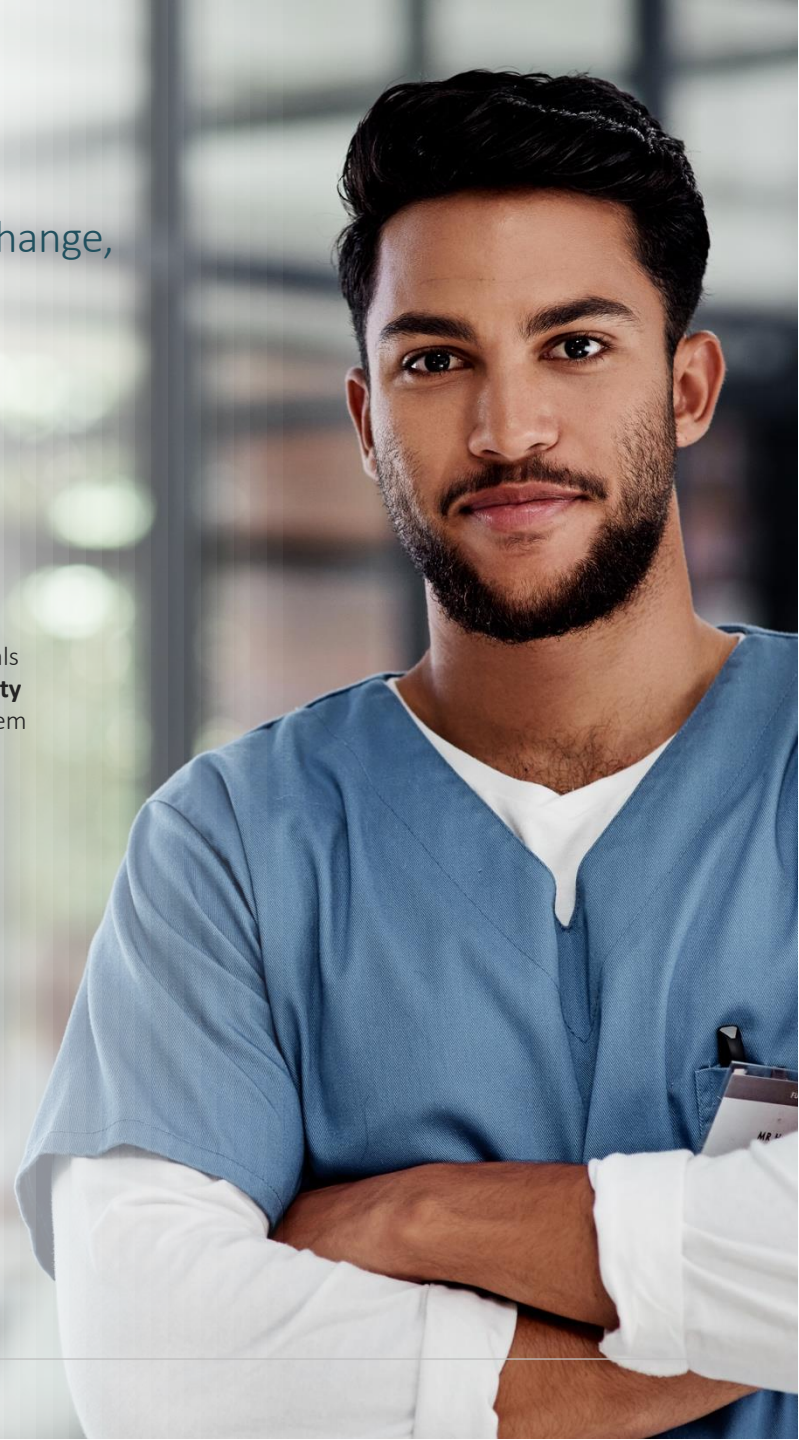
of younger healthcare professionals in Saudi Arabia say **lack of flexibility in patient treatment** concerns them most about their career

19% 15-country avg.

of younger Saudi healthcare professionals say **increased administrative burden** concerns them most about their career

36% 15-country avg.

Base (unweighted): Total younger healthcare professionals (15-country avg. n=2,867; Saudi Arabia=201)



Report conclusion

Report **conclusion**

The Future Health Index 2020 report makes it clear that the next generation of healthcare professionals in Saudi Arabia is well-prepared to lead the way in the adoption of healthcare technologies to ensure better clinical outcomes, enhanced patient experiences and an engaged healthcare workforce.

The Future Health Index 2020 report identifies the below critical findings:

1. *Saudi Arabia's younger healthcare professionals are well prepared for both the clinical and non-clinical aspects of their roles by their medical education*
2. *Knowledge of value-based care is among the highest in Saudi Arabia, compared to younger healthcare professionals in other countries surveyed*
3. *Most younger healthcare professionals surveyed believe that digital health technologies will improve patients' experiences*

The vast majority of younger healthcare professionals in Saudi Arabia feel excited about the future of their profession because of advancements in medical technology.

Glossary of **terms**

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

Artificial intelligence (AI)
Artificial intelligence (AI) uses data science techniques, designed by people and inspired by intelligent behavior, to create systems and solutions that can sense, reason, act and adapt to assist with complex and repetitive tasks.

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

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

Data security
Protecting data against unauthorized access.

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

Electronic medical records (EMRs) and electronic health records (EHRs) fall within the term 'digital health records'.

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

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

Healthcare professionals under 40
This is our group of survey respondents: healthcare professionals (all medical staff, including doctors, nurses, surgeons, radiologists, etc.) aged under 40 years at the time of the research. Some of these people will already be leaders in their field, but together they will make up the main body of the healthcare workforce over the next 20 years.

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

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

Medical education
Education related to the practice of becoming a healthcare professional – both the initial medical school training and continuing medical education following qualification.

Quadruple Aim
Philips makes value-based care principles actionable by addressing the Quadruple Aim:

- Improved patient experience – improving the patient experience of care (including quality and satisfaction)
- Better health outcomes – improving the health of individuals and populations
- Improved staff experience – improving the work-life balance of healthcare professionals
- Lower cost of care – reducing the per capita cost of healthcare

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.

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

Telehealth
The use of electronic information, digital health technology or mobile health applications and telecommunications technologies to support long-distance exchange between healthcare professionals and patients and healthcare professionals and their peers, as well as for 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.

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

Younger healthcare professional
All medical staff under the age of 40 who have completed their first medical or nursing degree.

Research **methodology**

Research background

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

In 2016, the Future Health Index measured perceptions of healthcare to produce a snapshot of how healthcare is experienced on both sides of the patient-professional divide. In 2017, it compared these perceptions to the reality of health systems in each country researched. In 2018, the Future Health Index identified key challenges to the large-scale adoption of value-based healthcare and overall improved access. It assessed where connected care technology can help speed up the healthcare transformation process. In 2019, the Future Health Index explored technology's impact on two aspects of the Quadruple Aim: the healthcare experience for both patients and healthcare professionals[1] and how technology is moving us to a new era of continuous transformation.

2020 research overview and objectives

Now in its fifth year, the Future Health Index 2020 report builds on the findings of the previous reports by examining the expectations and experiences of younger healthcare professionals aged under 40 and how they can be empowered to meet the demands of tomorrow's healthcare.

As the first global survey of its kind, the Future Health Index 2020 report features intriguing insights into the next generation of healthcare professionals, a group that will form most of the healthcare workforce over the next 20 years. The research explores this group's expectations around technology, training and job satisfaction, and the reality of their experience as healthcare professionals.

The research gives a clear mandate to healthcare leaders to respond to the concerns of this young generation of healthcare professionals and highlights three areas to address as a matter of urgency: education and training, technology, and workplace culture.

The research for the 2020 Future Health Index was conducted in 15 countries (Australia, Brazil, China[2], France, Germany, India, Japan, Netherlands, Poland, Romania, Russia, Saudi Arabia, Singapore, South Africa and the United States of America).

To provide a holistic understanding of the current healthcare systems around the world, the 2020 study combines quantitative surveys and qualitative online focus groups conducted from January-February 2020 among the following key stakeholders:

- Healthcare professionals in 15 countries (quantitative)
- Healthcare professionals in 5 countries (qualitative)

2020 quantitative survey methodology

In partnership with SERMO, an independent global market research firm, a survey was fielded from November 15 to December 27, 2019 in 15 countries (Australia, Brazil, China, France, Germany, India, Japan, Netherlands, Poland, Romania, Russia, Saudi Arabia, Singapore, South Africa and the United States of America) in their native language. The survey was conducted online and offline (as relevant to the needs of each country) with a sample size of 200 per country for healthcare professionals under 40 years old. The exceptions were Singapore and Australia[3], which each had slightly smaller samples. The survey length was approximately 15 minutes.

The total sample from the survey includes:

- 2,867 healthcare professionals under the age of 40 years old (defined as all medical staff, including doctors, nurses, surgeons, radiologists, etc.), who have completed their first medical or nursing degree.

At the 95% confidence level, the 15-country total for the healthcare professional population has an estimated margin of error[4] of +/- 1.8 percentage points.

Research **methodology**

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

	Unweighted sample size (N=)	Estimated margin of error (percentage points)	Interview methodology
Australia	150	+/- 8.0	Online
Brazil	203	+/- 6.9	Online
China	201	+/- 6.9	Online
France	202	+/- 6.9	Online
Germany	200	+/- 6.9	Online
India	202	+/- 6.9	Online
Japan	202	+/- 6.9	Online
Netherlands	201	+/- 6.9	Online
Poland	201	+/- 6.9	Online
Romania	202	+/- 6.9	Online
Russia	200	+/- 6.9	Online
Saudi Arabia	201	+/- 6.9	In-person
Singapore	100	+/- 9.8	Online
South Africa	201	+/- 6.9	Online
United States of America	201	+/- 6.9	Online

Weighting

Total country weighting:

The 15-country average is an average calculation whereby each country's sample size was weighted to have the same value, as such ensuring that each country has an equal weight in this total. The same was done for all regional totals, as well as emerging country and developed country totals[5].

Country classifications are according to the International Monetary Fund[6].

- For the Future Health Index 2020 report, Brazil, China, India, Poland, Romania, Russia, Saudi Arabia and South Africa are considered emerging countries.
- For the Future Health Index 2020 report, Australia, France, Germany, Japan, Netherlands, Singapore and the United States of America are considered developed countries.

Statistical analysis

A statistical analysis was performed to explore the relationship between the type of hospital/practice (in this instance, 'smart,' 'digital' or 'analog') and younger healthcare professionals' agreement with several questions asked in the Future Health Index 2020 survey. The analysis showed that there is, in fact, a statistical relationship between the type of hospital/practice and certain aspects of their careers.

The following survey questions were used for this analysis:

To what extent do you agree or disagree with the following?

- The reality of my career lives up to the hopes and expectations that I had during my medical education
- I regularly experience work-related stress
- I have considered leaving the healthcare profession as a result of work-related stress
- Advancements in medical technology make me excited about the future of the healthcare profession

How satisfied or dissatisfied are you in your work as a healthcare professional?

- In Saudi Arabia shown as "How satisfied or dissatisfied are you in your personal decision to become a healthcare professional?"

A chi-square test of independence was performed for the analysis of each of these survey questions. All results showed the relationship between these variables was significant at the $p<.001$ level.

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.

Research **methodology**

2020 qualitative interviews methodology

To provide context to the quantitative data (as described previously), the research was supplemented with two waves of online focus groups with doctors. Wave one, conducted from January 10, 2020-January 13, 2020, had 36 participants across the following markets: Brazil, United States of America, France, Germany and Australia. Wave two, conducted from February 3, 2020-February 6, 2020, had 41 participants across the following markets: Brazil, United States of America, France, Germany and Australia. Online focus groups were conducted in participation with SERMO, an independent global market research firm.

References

1. For the purposes of this survey, 'healthcare professional' refers to all medical staff, including doctors, nurses, surgeons, radiologists, etc.
2. Each third-party 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.
3. Singapore healthcare professional sample: 100 in total; Australia healthcare professional sample: 150 in total.
4. Estimated Margin of Error is the margin of error that would be associated with a sample of this size for the full healthcare professional population in each country. However, this is estimated since robust data is not available on the number of healthcare professionals under the age of 40 and specialty mixes in each country surveyed.
5. Countries are classified as emerging or developed by the International Monetary Fund based on 1) per capita income level, 2) export diversification, and 3) degree of integration into the global financial system.
6. "World Economic Outlook Database." International Monetary Fund, April. 2018. https://www.imf.org/external/pubs/ft/weo/2018/01/weodata/weoselagr.aspx.

The Future Health Index is commissioned by Philips.

To see the full report visit www.philips.com/futurehealthindex-2020

The 2020 study comprises original research via a survey of 2,867 healthcare professionals under the age of 40 years old, who have completed their first medical or nursing degree, across 15 countries: Australia, Brazil, China, France, Germany, India, Japan, Netherlands, Poland, Romania, Russia, Saudi Arabia, Singapore, South Africa and United States of America.

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