

The age of **opportunity**

Empowering the next generation to **transform healthcare**

Singapore

The Future Health Index is commissioned by Philips



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FHI 2020 Report for Singapore

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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.



Singapore overview

Caroline Clarke, Market Leader, Philips ASEAN Pacific



Singapore's healthcare system is a world-acclaimed standard.

Over the past decades, Singapore's healthcare system has made great leaps and won international praise for its efficiency, future-ready stance and effective provision of care for Singapore's growing population.

Singapore's focus and investments on digitalizing healthcare, developing skilled talent, and engaging the population in taking greater ownership of health has also paid off – this is especially evident during the COVID-19 pandemic.

Yet, an evolving future calls for transformation.

As Singapore sets its sights on tackling healthcare challenges such as an aging population, rising chronic diseases and others, it is clear that greater transformation is needed to ensure that the healthcare system continues to provide accessible, high quality and affordable care to all.

The Future Health Index 2020 report for Singapore focuses on the current generation of younger healthcare generations who will bear the responsibility of charting Singapore's future healthcare needs – particularly their experiences, expectations and realities they face in practice and beyond.

Giving Singapore's younger healthcare professionals a boost.

Singapore's younger healthcare professionals, vis-à-vis their peers, have an exceptional attitude and belief in the work that they do. Their dedication to patients, optimistic outlook for digital healthcare, and strong belief in their role are positive indicators of their potential to transform the future of healthcare in Singapore.

Yet, they have also expressed some concerns such as around the data-related skills gap between medical training and practice.

As the world is moving towards 'value-based care', we found that these younger professionals have very limited knowledge of the term 'value-based care' and as such, the hospitals and practices they work for continue to use volume-based metrics to measure healthcare facility performance.

Just like many people, the desire to be heard and empowered is important. These younger healthcare professionals believe they can drive change in how their hospital or practice is managed, but despite this, many still feel the negative impact of decisions made by non-medical stakeholders.

In Singapore, the healthcare system has advanced in the use of digital health records and is ready to move on to implementing artificial intelligence (AI) for integrating diagnostics, predicting outcomes and optimizing operational efficiency. Far from removing the human element to healthcare, Singaporeans advocate for the benefits of technology to both their professional satisfaction, and patient experience and outcomes.

These insights from the Future Health Index 2020 report provide critical areas for healthcare leaders and policy makers to address. With younger healthcare professionals shouldering a growing number of responsibilities, it's key that we evaluate how to better engage them to enable them to thrive and contribute positively to an evolving healthcare landscape.

Singapore has already made great advances in smart healthcare and modernizing its healthcare system. It is equally important to nurture and enable our younger healthcare professionals to be better equipped and prepared for the challenges to come.

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



Countries included in the research

I. Australia	6. India
2. Brazil	7. Japan
3. China	8. Netherlands
1. France	9. Poland
5. Germany	10. Romania

- 11. Russia
- 12. Saudi Arabia
- 13. Singapore
- 14. South Africa
- 15. United States of America

*Younger healthcare professionals are defined as healthcare professionals including general practitioners, specialists and nurses, under the age of 40. In Singapore, 100 younger healthcare professionals were surveyed.

Please note the Asia Pacific (region) referenced in this report consists of Australia, China, India, Japan and Singapore.

Theme

Bridging the gap between expectation and reality

Recognized globally for its efficient healthcare system, it is unsurprising that data from the Future Health Index 2020 shows that Singapore leads the way in many aspects of technology adoption and delivery of care. The dedication and hard work of its healthcare professionals has no doubt contributed to the positive reputation of the country's healthcare system, and it is today's younger healthcare professionals who must maintain and build on this reputation. However, data collected from the Future Health Index 2020 shows that, in some cases, Singapore's younger healthcare professionals feel their medical education did not prepare them for the realities of their role. By entering the field underprepared, along with gaps in knowledge, skills and data, Singapore's younger healthcare professionals are challenged. To promote the success of Singapore's national healthcare system moving forward, there needs to be continued progress to close the disparities experienced in the field.

- **Skills gap.** Many younger Singaporean healthcare professionals identify significant skills gaps in key nonclinical areas, such as data analysis and the understanding of data privacy regulations. A large proportion feels their medical education did not fully prepare them for these tasks.
- Knowledge gap. Hospitals and healthcare practices around the world are increasingly shifting towards valuebased care, which refers to the concept of healthcare professionals receiving reimbursement based on patient health outcomes rather than on the volume of tests or procedures completed. However in looking at Singapore specifically, many of its younger healthcare professionals are unfamiliar with the concept. As such, hospitals in Singapore rely largely on volume-based metrics to measure the success of their operations.
- Data gap. Younger Singaporean healthcare professionals face challenges when it comes to working with data. About three--quarters say sharing restrictions often result in incomplete digital patient data, or that they don't have enough data to influence patient outcomes. To alleviate this data gap, Singapore's younger healthcare professionals are seeking guidelines and leadership from industry organizations.

The **skills** gap

Singapore's hospitals and practices provide ongoing education to deal with data-related skills gaps

Younger Singaporean healthcare professionals feel unprepared by their medical education for the data-related aspects of their roles.

Many younger Singaporean healthcare professionals do not feel their medical education prepared them at all for the data-related aspects of their role. Among the non-clinical skills they were asked about, they reported a skills gap around data privacy and regulations as well as data analysis and interpretation.



Singaporean hospitals and practices are doing their part to close the data-related skills gaps of their younger healthcare professionals.

In response to these critical skills shortages, hospitals and practices in Singapore are providing continuous education on data-related skills for their new to the field younger healthcare professionals. They are doing this at significantly higher rates than the average of all countries surveyed. Particularly when it comes to data analysis and interpretation, Singapore's hospitals are more likely than those in Australia and the United States of America to provide continuous education.



The **knowledge** gap

There is little knowledge of value-based care in Singapore

Singapore's younger healthcare professionals are among the least likely of those surveyed to know about value-based care.

In Singapore, the overwhelming majority (96%) of younger healthcare professionals have limited or no knowledge of value-based care, indicating a need for a substantial increase in awareness. There is a general acceptance in the healthcare industry that the value-based care model is necessary for the future success of healthcare systems. Working alongside healthcare executives, younger healthcare professionals will soon be responsible for implementing this concept. However, across all of the countries surveyed, there is limited knowledge of value-based care.



96% only knew it **by name, knew a little** or knew nothing at all about it

4% knew a lot about it

Country comparisons (Those who knew a little/nothing at all/only knew it by name regarding value-based care):



In Singapore, hospitals and practices reliance on certain volume-based measures reinforces the knowledge gap.

According to Singapore's younger healthcare professionals, hospitals and practices commonly measure performance using volume-based indicators. In fact, at higher rates than the average of those across all countries surveyed, Singaporean hospitals and practices use the number of patients seen to measure performance. This reinforces the status quo of volume-based metrics as the standard method of measuring healthcare delivery and could inhibit the widespread adoption of value-based care.



of younger healthcare professionals in Singapore say their hospital or practice **use volume-based measures**

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



Base (unweighted): Total younger healthcare professionals (15-country average n=2,867; Asia Pacific n=855; Singapore n=100; United States of America n=201; Australia n=150) Note: Asia Pacific countries = Australia, China, India, Japan and Singapore

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The **data** gap

Singapore's regulatory environment results in incomplete patient data for younger healthcare professionals

Younger healthcare professionals in Singapore report critical issues with digital patient data.

Singapore's next generation of healthcare professionals is more likely than those in many of the other countries surveyed to report incomplete patient data as a result of sharing restrictions. Younger healthcare professionals practicing in Singapore also report that they don't have enough digital patient data available to influence patient outcomes at higher rates than their peers in the United States of America. This has an impact on their ability to improve patient experiences and outcomes. In Singapore, younger healthcare professionals are seeking practical resources and frameworks to help them use digital patient data.

Compared to findings in the Future Health Index 2020 global report, younger healthcare professionals in Singapore diverge from those in most of the other countries surveyed in their belief that widely accepted use of digital patient data by professional organizations would be most helpful in ensuring that the data is used effectively. Beyond this, they seek access to guidelines on best practices for their practical application. Younger healthcare professionals in Singapore are more likely than the average of those across the countries surveyed and the United States of America to see the benefit of these resources.

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 average n=2,867; Asia Pacific n=855; Singapore n=100; United States of America n=201; Australia n=150) Note: Asia Pacific countries = Australia, China, India, Japan and Singapore

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Harnessing technology to help transform healthcare

Across the globe, digitization of health systems is an ongoing process. In Singapore, specifically, adoption of digital health technologies is not the issue. The real difficulties come in the utilization of various advanced technologies for both everyday patient care and professional satisfaction. Singapore's younger healthcare professionals face challenges, such as a lack of education on data analysis and interpretation, which limits their ability to fully leverage the benefits of data within their hospitals and practices.

Together, data and the technology to harness its potential have the power to build healthcare systems robust enough to deliver value-based care. The Future Health Index 2020 report shows that younger healthcare professionals in Singapore see the value of technology, but cannot use it to its fullest potential.

- Technology's role in improving patient care. Within the Asia Pacific countries, the next generation of healthcare professionals recognizes the importance of anonymized health data. The majority of younger healthcare professionals in Singapore agree that the societal benefits outweigh privacy concerns when using anonymized data in patient care.
- **Technology's role in healthcare professionals' satisfaction.** In Singapore, younger healthcare professionals understand that technology can reduce their workload. They also see a clear link between the use of technology and lower stress levels.
- Recognizing the value of artificial intelligence. While younger healthcare professionals in the other countries surveyed prioritize the adoption and integration of digital health records in their health systems, Singapore's younger healthcare professionals look to artificial intelligence as the next horizon in digital health technologies that will improve national health systems.
- **The power of interoperability.** Younger healthcare professionals in Singapore have a positive view of the impact data can have on healthcare. However, about a quarter say a lack of interoperability is a logistical barrier to adoption at their hospital or practice. Incomplete information and incompatibilities between different systems make it challenging for healthcare professionals to get a complete view of their patients.

Technology's role in improving patient care

Singaporeans are already convinced of the ability of digital health technologies to enhance patient outcomes and experiences

The next generation of Singaporean healthcare professionals sees technology's potential to positively impact patient experiences and outcomes.

Younger Singaporean healthcare professionals are more likely than the average of those across all of the countries surveyed and younger healthcare professionals in the United States of America to believe that digital health technologies will improve patients' experiences and outcomes.



In fact, younger Singaporean healthcare professionals are among the most likely of all the

The next generation of healthcare professionals in Singapore is more likely than the average

of the countries surveyed to believe that the societal benefits of using anonymized health

countries surveyed to believe anonymized health data is beneficial to patient care.

data outweigh risks to individual data privacy.

Technology's role in healthcare professionals' satisfaction

Singaporeans expect artificial intelligence to reduce workload and decrease stress levels

Singapore's next generation of healthcare professionals actively advocates for technology to streamline workload and reduce work-related stress.

Younger healthcare professionals in Singapore are among the most likely of the other countries surveyed to believe that the right technologies could reduce their workload. They are also more likely than younger healthcare professionals in many of the other countries surveyed, including Australia and the United States of America, to expect the adoption of digital health technologies to decrease their stress levels.



Artificial intelligence (AI) is especially of interest to younger Singaporean healthcare professionals; they believe it is the top digital health technology that will improve their work satisfaction.

In Singapore, younger healthcare professionals believe AI has a role to play in helping to integrate diagnostics, predict outcomes and optimize operational efficiency. They are also more likely than their Australian and American peers to believe adopting AI to integrate diagnostics and predict outcomes will improve their professional satisfaction. With the help of AI, workload and stress are expected to decrease.



Recognizing the value of **artificial intelligence**

Personalized care and more accurate diagnoses are among the benefits artificial intelligence can offer patient care in Singapore

Younger healthcare professionals in Singapore see artificial intelligence (AI) as the digital health technology that will most positively impact patient care in the future.

Younger Singaporean healthcare professionals are more likely than the average of all countries surveyed, as well as Australia and the United States of America, to connect Al with improvements in patient care over the next five years. They are most optimistic about the role of Al in integrating diagnostics.

Younger Singaporean healthcare professionals believe AI is instrumental in offering personalized care, providing more accurate diagnoses and reducing administrative work.

Younger healthcare professionals in Singapore are more likely than their Australian or American peers to believe the potential benefits of AI will improve patient care.



The power of **interoperability**

Further adoption of digital health technologies in Singapore is suspended by a lack of interoperability

According to Singapore's younger healthcare professionals, hospitals and practices in Singapore are ready and willing to embrace new technology. This is unsurprising given its global reputation as a leader in technology.

On par with the average of Asia Pacific countries surveyed, Singaporean hospitals and practices are highly likely to embrace new technologies.



86% United States of America

Interoperability challenges are impacting digital health technology adoption in Singapore.

Much like other Asia Pacific countries and the United States of America, younger Singaporean healthcare professionals report a lack of interoperability across systems and platforms as one of the top barriers to embracing technology for hospitals and practices.



Improved interoperability between platforms is vital to ensure healthcare data is used to its fullest potential.

Younger healthcare professionals in Singapore are the most likely of all the countries surveyed to call for improved interoperability between platforms.



Base (unweighted): Total younger healthcare professionals (15-country average n=2,867; Asia Pacific n=855; Singapore n=100; United States of America n=201; Australia n=150) Note: Asia Pacific countries = Australia, China, India, Japan and Singapore

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Theme

Culture, collaboration and empowerment: creating the ideal working environment

The responsibility of caring for an aging, but generally healthy, population falls on Singapore's younger healthcare professionals and future healthcare leaders. As they strive to update the legacy of an already high-performing national health system, the demands of the workplace are evolving. Singapore's younger healthcare professionals expect the latest technology and equipment: it has been woven into the DNA of Singapore's health system from the beginning. However, the next generation of healthcare professionals in Singapore has differing expectations in its desire for healthcare facilities that offer a culture of support and flexibility. These additional resources combat the stress that they feel on a daily basis and help prevent burnout.

- Flexibility first. Younger healthcare professionals in Singapore see more than 100 patients per week, higher than the average of the other countries surveyed. Even with a heavy patient load, Singapore's younger healthcare professions are satisfied with their roles and less likely than the average of the countries surveyed to report that they have considered leaving the profession due to personal stress.
- A supportive workplace. Singapore's younger healthcare professionals consider several factors when choosing a hospital or practice in which to work. Workplace culture features prominently among their top considerations, as well as availability of technology and professional autonomy.
- Engaging the workforce of the future. In Singapore, younger healthcare professionals are excited about how technology can impact the future of healthcare and believe that the implementation and adoption of new technologies are important for their work. Digital health technology and smart hospitals have a big impact on the overall experience of younger healthcare professionals in Asia Pacific countries, including those who practice in Singapore, saying it improves their overall job satisfaction and reduces stress.
- Lowering internal barriers to transformational change. Most younger Singaporean healthcare professionals see themselves as being able to drive change in their workplaces. However, a failure by non-medical leaders to acknowledge or act on their suggestions is a barrier for some younger Singaporean healthcare professionals.

Flexibility first

Unlike their peers, Singaporeans are not at risk of leaving the profession, despite seeing a high volume of patients

Singapore's younger healthcare professionals see a large number of patients per week, more than their peers in the United States of America and Australia.

Despite larger patient volumes, younger Singaporean healthcare professionals are broadly satisfied with their role. Singapore's next generation of healthcare professionals also stand out in their commitment to their careers, with very few reporting that work-related stress has driven them to consider leaving the profession.

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



Base (unweighted): Total younger healthcare professionals (15-country average n=2,867; Asia Pacific n=855; Australia n=150; Brazil 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)

Note: Asia Pacific countries = Australia, China, India, Japan and Singapore

Selecting a supportive workplace

Younger healthcare professionals seek workplaces with supportive environments and the latest technology

As a country that has been a pioneer in advanced technology, it is no surprise that Singapore's younger healthcare professionals most value technology, along with autonomy and workplace culture when choosing where to work.

Younger Singaporean healthcare professionals are much more likely than their counterparts in Australia and the United States of America to see the availability of the latest medical technology as an important factor in selecting a workplace. Cultural factors such as collaboration, autonomy and work-life balance are also important for this group.





Engaging the workforce of the future

Personal satisfaction and excitement for the future of healthcare are driven by advancements in medical technology

In line with Singapore's advanced status in healthcare technology, younger healthcare professionals in Singapore are more likely than those in many of the other countries surveyed to be enthusiastic about advancements in medical technology.

Singapore's younger healthcare professionals are significantly more likely than their American peers to say advancements in medical technology make them excited about the future of the healthcare profession.



say advancements in medical technology make them **excited about the future** of the healthcare profession

<mark>2%)</mark> 15-country avg







Base (unweighted): Total younger healthcare professionals (15-country average n=2,867; Asia Pacific n=855; Singapore n=100; United States of America n=201; Australia n=150)

Note: Asia Pacific countries = Australia, China, India, Japan and Singapore

In the Asia Pacific countries surveyed, younger healthcare professionals experience greater satisfaction when technology is embraced and adopted for daily use.

Younger healthcare professionals who work in smart or digital facilities in the Asia Pacific region are more satisfied in their jobs than those in analog facilities. Those in analog facilities are also more likely to have considered leaving the healthcare profession altogether.



Base (unweighted): Total younger healthcare professionals in Asia Pacific (Those who work in 'smart' facilities n=201; Those who work in 'digital' facilities n=531; Those who work in 'analog' facilities n=123)

Younger Asia Pacific healthcare professionals who work in a hospital or practice that is willing to embrace new technology are more likely to be satisfied with their work as a healthcare professional.



Base (unweighted): Total younger healthcare professionals in Asia Pacific (Those who are satisfied n=695; Those who are dissatisfied n=58)

Transformational change has internal barriers

Some Singaporeans feel less empowered at work due to a lack of interest in their suggestions for improvement

In Singapore, younger healthcare professionals feel empowered and believe they can drive change.

Younger Singaporean healthcare professionals are among the most likely of all the countries surveyed to believe they can drive change in how their hospital or practice is managed, trailing only Saudi Arabia (87%). Singapore's younger healthcare professionals feel significantly more empowered in their workplaces than their peers in Australia and the United States of America.



Younger Singaporean healthcare professionals who are not confident in their ability to drive change feel their suggestions are not acted upon, listened to or acknowledged.

In the Asia Pacific region, of which includes younger Singaporean healthcare professionals, many feel their suggestions are not heard or implemented. Additionally, younger healthcare professionals in this region encounter budgetary constrictions. The majority of younger Singaporean healthcare professionals also report lower job satisfaction as a result of decisions being made by stakeholders with non-medical backgrounds, which is consistent with the views of Australian and American younger healthcare professionals.



Base (unweighted): Total younger healthcare professionals who do not feel or do not know if they feel they are able to drive change in how their hospital/practice is managed (15-country average n=1,382; Asia Pacific n=397)

Base (unweighted): Total younger healthcare professionals (15-country average n=2,867; Asia Pacific n=855; Singapore n=100; United States of America n=201; Australia n=150)

Theme

COVID-19 and younger healthcare professionals

Since the original fieldwork at the onset of COVID-19, the healthcare landscape has continued to evolve rapidly. For most, the pandemic has been an intense experience, from which much has been learned.

To augment the original findings in the FHI 2020 report, we conducted a supplementary survey among 500 younger doctors in China, France, Germany, Singapore and the US, in order to assess the healthcare landscape during the COVID-19 pandemic.

This FHI Insights survey explores the impact of COVID-19 on younger doctors, which reveals surprising trends relating to younger health care professionals' **dedication to their work, attitudes around collaboration, AI, telehealth and interoperability**.

- **Dedication remains High.** Despite some predictions, the pressures of working on the frontline during the COVID-19 pandemic have not led to a surge in the number of younger doctors wanting to leave the profession. In the face of a rising call during this crucial period, dedication and long-term commitment remain high.
- **Collaboration a Priority.** For many, the pandemic has brought with it a more collaborative, digitallyenabled working environment, with younger healthcare professionals reporting more collaborative workspaces across skillsets – a trend they wish to become a lasting legacy of the pandemic.
- **Recognition of AI & Telehealth's importance.** Al and Telehealth were noted as among the top digital health technologies that would have most improved their experience during the pandemic.
- **Tackling issues of interoperability.** Even amidst the pandemic, an overwhelming number of younger doctors still say they were unable to leverage health data to its fullest potential, highlighting the issue of interoperability that remains unresolved and hindering progress in digital health data use.

Foreword

Jan Kimpen, Philips Chief Medical Officer



It is no exaggeration to say that the COVID-19 pandemic has had a transformative impact on society. Few of us have been unaffected: from those battling the virus, patients facing delays with routine medical treatment, and thousands of people obliged to quarantine to protect themselves and others.

But frontline healthcare workers are undoubtedly among those who have suffered most. Healthcare workers in the United States of America¹ have reported significant levels of anxiety and stress while caring for patients with COVID-19. Research on COVID-19 in China² reveals high rates of mental health issues, including depression, anxiety and insomnia among healthcare professionals. And, across the board, medical associations report a surge in demand for well-being support services in recent months.³ For most, the pandemic has been an intense experience, from which much has been learned. This FHI Insights survey explores the impact of COVID-19 on younger doctors and follows on from our annual Future Health Index 2020 report, published in March.

The findings reveal a renewed sense of purpose among many within this group. These same younger doctors report greater appreciation from colleagues and patients alike and, encouragingly, more exposure to new ways of using digital health technologies. And, despite the challenges of recent months, it is gratifying to learn that younger doctors are as committed to their work as ever.

As we navigate the challenges of the pandemic, I invite healthcare leaders to consider these findings as they plan for the future.

1 https://www.nytimes.com/2020/03/16/us/coronavirus-doctors-nurses.html

2 https://labblog.uofmhealth.org/med-u/study-chinese-doctors-shows-mental-toll-of-caring-time-of-covid-19

3 https://managementinpractice.com/covid-19/covid-19-significant-rise-in-number-of-doctors-seeking-mental-health-support/ / https://www.theguardian.com/us-news/2020/may/15/us-nurses-doctors-mental-health-coronavirus

Overview

Future Health Index Insights: COVID-19 and younger healthcare professionals, is based on research conducted among **500** younger doctors in China, France, Germany, Singapore and the United States of America, in order to assess the healthcare landscape during the COVID-19 pandemic.

The findings reveal how COVID-19 has impacted both their job satisfaction and their use of technology. The research identifies five key trends which healthcare leaders should watch as they focus on reshaping how healthcare is organized and delivered:

Telehealth

is crucial but

underused



Younger doctors are more **committed** to the profession



Collaboration is still a top priority

M S



Interoperability remains an obstacle



Digital technology is pivotal for the coming years

Younger doctors are more committed to their profession

Despite some predictions, the **pressures of working on the frontline** during the COVID-19 pandemic have **not led to a surge** in the number of younger doctors wanting to leave the profession.

On the contrary, **over a third** of younger doctors report being more likely to stay in medicine as a result of their work during the pandemic.



- Of younger doctors say they are **more likely to stay in medicine** as a result of their experiences working during the COVID-19 pandemic.
- While **9%** say they are **more likely to leave** medicine as a result of their experiences working during the COVID-19 pandemic.
- Of the remainder, **53%** of younger doctors report **that COVID-19 has had no effect** on them wanting to stay in or leave medicine

*Future Health Index 2020: doctors, nurses and specialists under 40 years old. Doctors represented 87% of the sample. ^Pulse survey: doctors under 40 years old When compared to their responses on the eve of the COVID-19 pandemic, most younger doctors and healthcare professionals now say they are much **less likely to consider leaving the profession.**

Likelihood to leave the profession:



Collaboration is still a top priority

The Future Health Index 2020 Report highlighted a strong desire among younger healthcare professionals for **increased collaboration in the workplace.*** For many, the pandemic has brought with it a more collaborative, digitally-enabled working environment.

When presented with a variety of options for what they might have experienced during the COVID-19 pandemic, 44% younger doctors reported **greater collaboration** with their colleagues across skillsets.

Looking ahead, many younger doctors want this **stronger culture of collaboration** to become a lasting legacy of the pandemic.

When asked what **changes in healthcare** they hoped would live beyond the pandemic, greater collaboration was one of the top five responses cited by respondents:



• 27% of younger doctors cited greater collaboration with colleagues across skillsets

*Future Health Index 2020 Report, p. 23. Report available here: www.philips.com/a-w/about/news/future-health-index/reports/2020/the-age-of-opportunity.html

Telehealth is crucial but underused

During the pandemic, telehealth emerged as a **crucial technology**, not only for ensuring the delivery of patient care but enabling the culture of collaboration younger doctors have come to appreciate. While there has been greater exposure to telehealth during the pandemic, there is still room for improvement.

When asked what would have most **improved their experience** at work during the pandemic:



healthcare professional-to-healthcare professional **telehealth**



better healthcare professional-to-patient **telehealth**

The pandemic has led to a shift in priorities, with younger doctors **recognizing the immediate value of telehealth.**

In the days before COVID-19*, **artificial intelligence (AI)** was seen as one of the most useful healthcare technologies to improve the work experience of younger healthcare professionals:



However, due to younger doctors' experience **telehealth** is now^ likely to be seen as one of the most useful:



of younger doctors cited **telehealth as among the top digital health technologies** that would have most improved their experience during the pandemic. **53% cited AI**.

*Future Health Index 2020: doctors, nurses and specialists under 40 years old. Doctors represented 87% of the sample ^Pulse survey: doctors under 40 years old



Interoperability remains an obstacle

Many hospitals and practices are not realizing the potential of health data, with most younger doctors (93%) saying they were unable to leverage it to its fullest potential during the pandemic.

Many younger doctors cite **interoperability** concerns around healthcare data:



47%

said that **better integration** of healthcare data between hospitals/practices (e.g., integration between systems/EMRs) would have most helped them leverage the data. The Future Health Index 2020 Report* highlighted the desire for **increased training and support in technology** among younger healthcare professionals.



Many younger doctors said that guidance on which data is appropriate to use would have helped them leverage it during the pandemic.



This echoes the findings of the Future Health Index 2020 Report*, in which portability of healthcare data between hospitals/practices was cited as a factor that would most improve their work satisfaction.

*Future Health Index 2020 Report, p. 8 and p. 9. Report available here: www.philips.com/a-w/about/news/future-health-index/reports/2020/the-age-of-opportunity.html

Digital technology is pivotal for the coming years

Many younger doctors hope that **greater exposure to digital health technologies** will continue after the pandemic subsides.

29%

Increased

appreciation

from patients

When asked what **work-related changes in healthcare** they hoped would outlast the pandemic, technology ranked highly among the various options, with:



29%

Exposure to new types of digital health technologies



29%

Exposure to new ways of using digital health technologies



28%

Accelerated availability of digital health technologies



27%

Greater collaboration with colleagues across skillsets



Country findings: Singapore

The COVID-19 pandemic has made many younger Singaporean doctors **more dedicated to remaining in their profession**

68%

Over half of younger Singaporean doctors said that their experiences working during the pandemic have made them more **likely to stay in medicine.**

Of the remainder, a quarter said that COVID-19 has had no effect on them wanting to stay in or leave medicine (26%) and only 6% said they are more likely to leave medicine as a result of their experiences during the pandemic. This increase in dedication may be due in part to some of the more positive effects the pandemic has had on their work experience. For many younger Singaporean doctors this includes less tangible aspects of their job, such as feelings of appreciation and a sense of purpose at work

When asked about their **experiences during the COVID-19 pandemic**, the top answers were:



greater appreciation from patients

a deeper feeling of purpose at work



57%

greater appreciation from non-medical leadership



improved or refreshed skill sets

Many younger Singaporean doctors hope some of the recent changes will become lasting legacies of the pandemic

Younger Singaporean doctors hope that the following will **outlast the pandemic:**



Country findings: Singapore

Younger Singaporean doctors place more importance on **AI to improve their experiences** than their counterparts in other countries

When asked what would have **most improved their experience** at work during the pandemic, younger Singaporean doctors identified:



Younger Singaporean doctors were more likely to say AI technologies (90% NET) would have **improved their experiences at work during the COVID-19 pandemic** than they were to say telehealth technologies (55% NET) would have. This contrasts with all other countries surveyed, where younger doctors saw telehealth as a more useful healthcare technology than AI. This could be a sign that telehealth implementation is already well-established in Singapore, creating a need for more advanced levels of technology such as AI.

All younger Singaporean doctors said they could not fully leverage health data and cited quality concerns and nearly three quarters of younger Singaporean doctors cite **quality concerns as a barrier** to using health data during the pandemic

All younger Singaporean doctors surveyed said that they were **not able to leverage health data to its fullest potential** during the pandemic.

When asked what **factors prevented them** from using health data related to COVID-19, younger Singaporean doctors said:

79% the quality of published data is uncertain

49% they need to rely on anecdotal data

Younger Singaporean doctors said access and availability to the following would have most helped them **leverage COVID-19 health data**, citing the following uses of AI as most beneficial to maximizing the use of available health data:



AI to integrate diagnostics

4% clin

clinical decision support based on AI

Report conclusion and recommendations

Report conclusion

Younger healthcare professionals form a core pillar of today's healthcare workforce, yet they also shoulder a growing amount of responsibility in addressing Singapore's future healthcare needs.

Despite their passion in delivering care, younger healthcare professionals face significant stress and potentially burnout – partly from heavy patient workloads, increased administration and the data-related skills gap between medical education and actual practice. The Future Health Index 2020 report identifies key focus areas and opportunities for healthcare leaders, with the aim to nurture younger healthcare professionals to transform healthcare for the future:

- Strong belief in personal ability to drive healthcare change, yet many feel unheard. Singapore's younger healthcare professionals are among the most likely out of all 15 countries surveyed to believe they can drive change in how their hospital or practice is managed. However, in general the next generation of Asia Pacific healthcare professionals feel the negative impact of organizational decisions and that their suggestions and views are often sidelined.
- Optimistic outlook for digital technology's potential to transform healthcare. In Singapore, the healthcare system has advanced use of digital health records and is ready to move on to implementing AI for integrating diagnostics, predicting outcomes and optimizing operational efficiency. Far from removing the human element to healthcare, Singapore's younger healthcare professionals advocate for technology's benefits to improve both their professional satisfaction and patient experience.
- More holistic skills development needed to bridge medical education to reality. Almost half of Singapore's younger healthcare professionals say their medical education did not prepare them for non-clinical skillsets such as data-related aspects of their job. In the new reality, younger healthcare professionals need to be equipped to manage non-clinical roles that include data management and administrative tasks.
- Value-based care remains a largely unknown concept, though necessary for the healthcare system's evolution to meet future challenges. Younger healthcare professionals in Singapore have very limited knowledge of the concept of 'value-based care' and its necessity for future success of healthcare systems. As such, most of the hospitals and practices they work for continue to use volume-based metrics to measure healthcare facility performance.
- Access to the latest medical technologies, greater autonomy on the job, and culture prized. Having a tech-savvy workplace, professional autonomy and a collaborative workplace culture are key deciding factors for younger healthcare professionals when deciding on a hospital or practice to work in, which in turn inform their satisfaction and performance.

Let's unleash the power of the next generation of healthcare professionals.



Recommendations

The Future Health Index 2020 report has captured **vital insights** from a new generation of healthcare professionals, revealing the gap between their expectations around training, technology and culture, and the reality of their experience as healthcare professionals.

When considering how to address the issues that have been highlighted in the report, there are three core areas on which healthcare leaders should first focus:



Education and training

- ✓ Increase focus on administrative and business management to reduce the burden on healthcare professionals
- Provide training on the use and interpretation of technology and data
- ✓ Build an understanding of the principles of value-based care

Technology

- ✓ Invest in data sharing technologies to make them more usable
- Harness technology to both improve work-life balance and clinical performance
- Work with payers and government to encourage the industry to deliver greater product interoperability

Culture

- Examine decision-making hierarchy and process to ensure that opinions of younger healthcare professionals are acknowledged and acted upon
- ✓ Involve younger professionals in the operational side of the hospital or practice
- ✓ Enable flexible working through staggered shift patterns
- ✓ Leverage technology to minimize stress and burnout



Research methodology – FHI 2020 Report

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 professionals¹ and how technology is moving us to a new era of continuous transformation.

References can be found at the end of this section

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, China², 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 gualitative 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 Australia³, 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 error⁴ of +/- 1.8 percentage points.

Research methodology – FHI 2020 Report

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 totals⁵.

Country classifications are according to the International Monetary $\mathsf{Fund}^{\mathsf{6}}.$

- 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 – FHI 2020 Report

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.

Methodology – Supplementary pulse FHI Insight survey

To assess the healthcare landscape during the COVID-19 pandemic, a pulse survey, *Future Health Index Insights: COVID-19 and younger healthcare professionals*, was conducted among **500** younger doctors in China, France, Germany, Singapore, and the United States of America to gather insights into how COVID-19 has **impacted both their job satisfaction and their use of technology.**

Country	Number of younger doctors surveyed
China	100
France	100
Germany	100
Singapore	100
United States of America	100
TOTAL SAMPLE	500

36 Future Health Index Insights: COVID-19 and younger healthcare professionals

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 longdistance 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 threedimensional 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.



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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