

A close-up photograph of a woman with dark hair, wearing clear safety glasses and a black polka-dot shirt. She is looking intently at a document she is holding in front of her. The background is blurred, suggesting an office or laboratory setting. A yellow graphic frame is overlaid on the right side of the image, containing the main title and subtitle. At the bottom left, there are three small yellow squares followed by a tagline. At the bottom right, the EY logo is displayed with a yellow triangle above it, and the tagline 'Building a better working world' is written below it.

How will advances in technology put the consumer at the center of health care?

A NextWave Health report
The Netherlands | 2019

■ ■ ■
The better the question. The better the answer.
The better the world works.

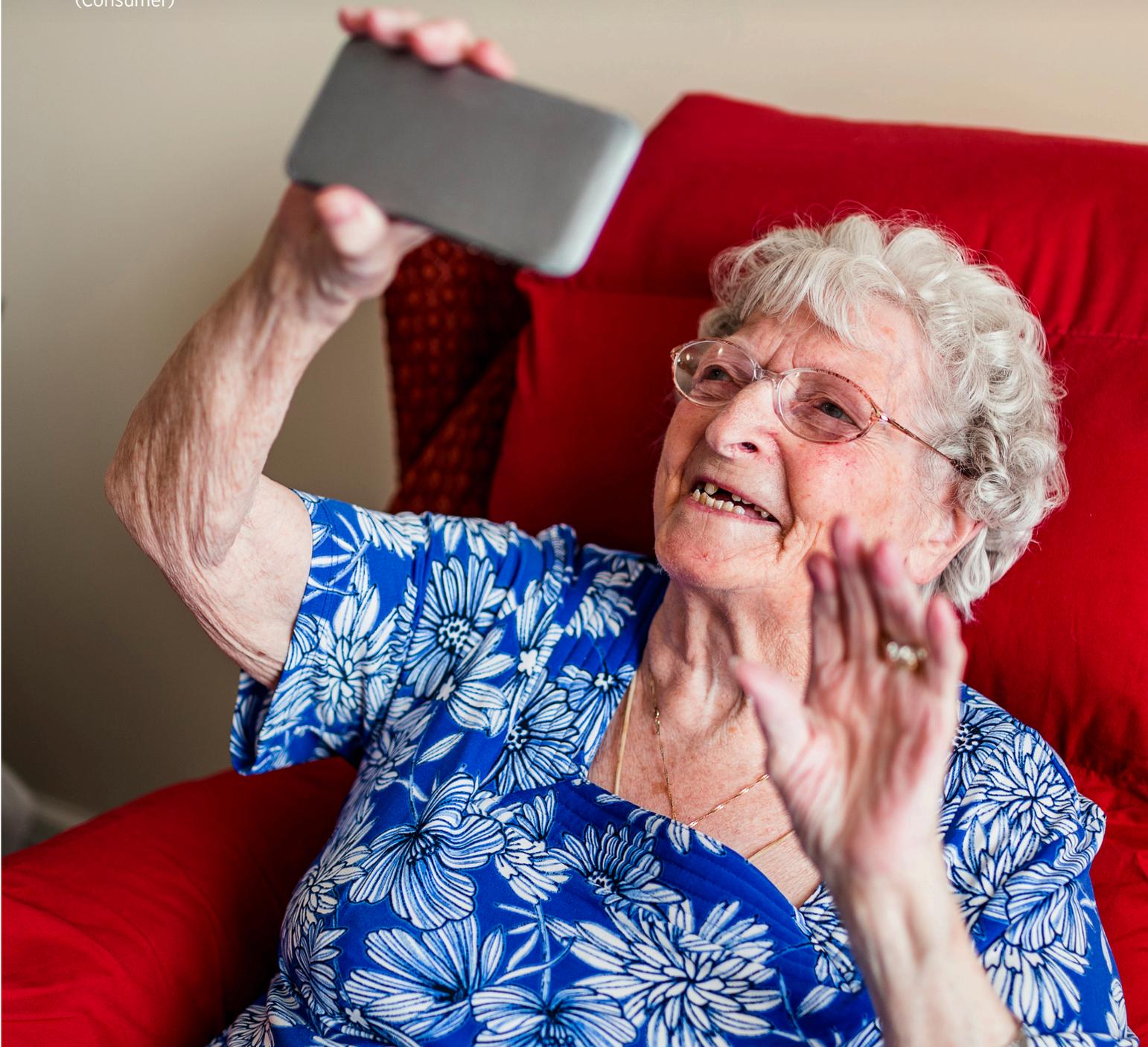
EY

Building a better
working world

“

I think they could further develop to help people more conveniently by applying more IT. Although, especially for elder care, personal contact continues to be important.

(Consumer)



Executive summary

The concept of health is broadening to embrace integrated and seamless systems of health, care and well-being. Digital health technologies will deliver new ways in which to understand and interact with patients, families and caregivers. Opportunity exists for disruptive innovations that connect or close the loop between elements of the health system to truly place the consumer at the center of health care. This lies at the intersection between care as usual, technologies that deliver care remotely, and consumer-oriented personal health technologies. Maturing consumerism and transformative digital technologies align to create a powerful force for change.

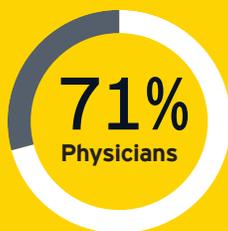
In this study on the future of health, EY finds that looking forward, both physicians and consumers anticipate that the health system will be very different from that of today. In the next decade, a maturing health consumerism and digital advances will significantly redefine the health industry into an interconnected and digitally driven system. Health and care will be underpinned by digital technologies such as artificial intelligence (AI), genomics, personalized medicine and remote monitoring, and new entrants will bring profoundly different approaches as they enter the industry.

In recent research,* we signal that participatory health – or the empowerment of consumers (in part through disruptive digital health technologies) to make smarter choices and pursue responsible behaviors – is a profoundly disruptive force for change in the health care system. In 2018, EY undertook further research with 2,038 consumers and 175 physicians in the Netherlands to better understand their perspectives on how digital health technologies are reshaping the delivery of health and care. (See “About the study.”)

This study finds that both consumers and physicians believe that emerging health technologies will substantially enhance the consumer experience, support improved health and underpin the patient-provider relationship.

However, technology uptake in the health industry lags when compared with other industries such as retail, travel and financial services. Although physicians and consumers see digital transformation coming, our study finds that they are taking their time to adopt and adapt.

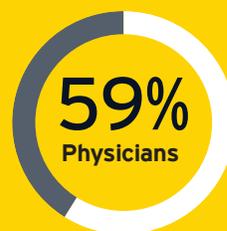
Highlighted findings



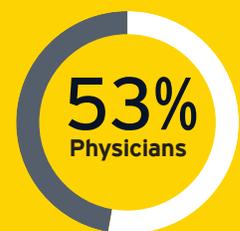
of physicians rate the overall performance of the health system of the Netherlands as “Excellent” and “Very good.” While 62% of consumers say it is “Average” and “Fair”



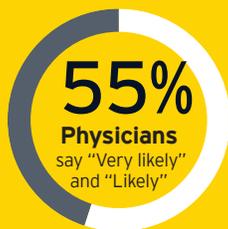
4% of consumers have experienced a virtual consultation; 41% of those who have not are interested in doing so in the future (those who say “Extremely/Very/Somewhat interested”)



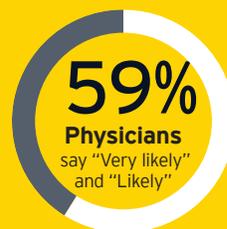
of physicians consider video consults to be effective ways of delivering better and more efficient outcomes for patients. Only 7%* of physicians currently offer virtual visits (*small number, indicative only)



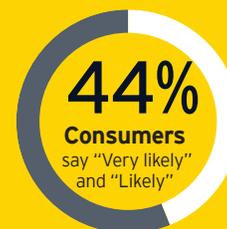
of physicians don't believe patient-generated health data will reduce physician burden



Within the next 10 years, smartphones will become the primary interface in the health system, allowing people to manage and improve their health



Artificial intelligence technologies will be commonly used in the next decade for diagnosis, medical imaging analysis and medication management



* EY. *Health reimagined - a new participatory health paradigm*, 2015
EY *The cross-currents of convergence deliver participatory health*, 2016



Closing the gap



A divide exists between consumers (digitally engaged and disengaged) and also between consumers and the physician community. Digitally engaged consumers welcome a consumer-centric system that is more convenient and delivers a better patient experience. These consumers are inclined to self-service through internet research and take steps to acquire more knowledge about health and treatments. For these consumers, value is defined by utility, cost and end-to-end experiences across their entire health care journey. And for them, value is increasingly derived from digital health technologies that systematize and simplify the experience of health and care. Digital organizational tools that remove some of the pain points in interacting with the system, such as making physician appointments online, are welcome improvements.

Physician technology priorities are clinical relevance, ease of use and patient safety. They use clinical support tools, and many believe patient-generated health data contributes to better outcomes and more efficient care. At present, however, they do not appear to have incorporated tech-enabled care tools that engage with consumers

outside of the clinical setting into practice-as-usual. As consumer demand for and adoption of tech-enabled care slowly builds to reach the tipping point, physicians will be challenged to respond – or will be out-competed and left behind.

For consumers, digital health technologies can open the door to knowledge, improved health literacy and growing capabilities in managing their health and care. What this foreshadows is a very different way of delivering health care. This requires a fundamental shift in current practice models, industry culture, facility operations and in business models to incorporate such technologies for better patient outcomes, personalized care and better patient experiences.

Acceptance and use often lag behind the capabilities of emerging technologies. Closing this gap is important. Patients' access to technologies often depends upon physicians' willingness to recommend them and to encourage and support patients to acquire the health literacy skills necessary to participate in a patient-centered system.

Physicians

Do you currently use any of the following digital health technologies in your (practice/workplace)?

% of physicians currently using specified technologies



Physicians are currently using technologies that augment clinical expertise and practice – for example, decision support for patient safety and clinical excellence and secure communications with other providers. Tools that engage with patients outside of a clinical setting are those least used at present.

Other technologies in use



* Small sample, indicative only

Access to relevant information enables consumers to ask questions and to make informed choices. We found that consumers actively seek health information using the internet to search for general content on health, wellness and healthy living and to research a diagnosis or condition.

Around one-quarter (28%) of consumers surveyed specifically search online for diagnostic or treatment information to discuss with their care provider. Around one-third (37%) of those with an ongoing health condition searched for information to discuss with their care provider.

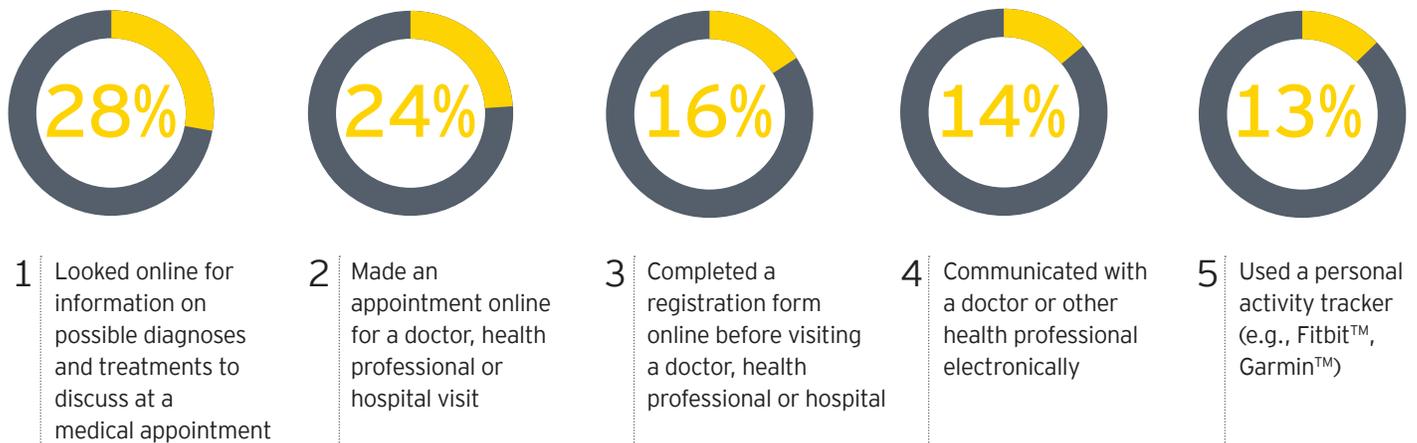
In the past 12 months, consumers have looked online for ...

- 42%** General research on an illness, injury or health problem
- 35%** Information to work out what health or medical condition you/family might have
- 34%** Information on healthy living (diet, fitness, smoking, etc.)

Consumers

Have you used any of the following health technologies (either currently or have done so in the past)?

% of consumers who say they have used certain technologies



Fewer than 10% of consumers ...

- 8%** Ordered prescription drug refills using apps on a phone
- 5%** Sent a photo of an injury or health problem to a medical professional using a computer or mobile device
- 4%** Consulted a medical professional by video on a computer or mobile device rather than in person
- 4%** Shared health data from a phone or fitness tracker at a medical appointment
- 3%** Used a smartphone connected device and sent the information to a medical professional
- 3%** Used an at-home diagnostic test kit and sent the information to a medical professional

Consumers (n) = 2,038

Physicians responded that some data originating outside of a clinical setting (patient-generated health data, or PGHD) will likely deliver better clinical outcomes and more personalized care.

However, PGHD is unlikely to lower physician burden. Physicians fear being overwhelmed by low-value data and a sharp increase in expectations and demand, driven by vast data inflow and burgeoning consumer devices.

Physicians

How likely is it that consumer/patient-generated health data (e.g., from mobile phone apps and sensor devices) will result in the following?

Ratings: "Very likely" and "Quite likely"



More personalized care plans for patients

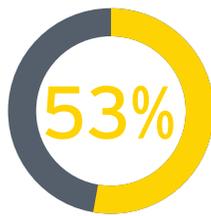


Improved transparency of patient adherence to treatment plans



Improved quality of patient care

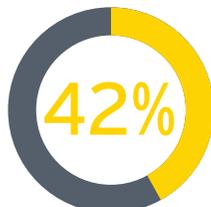
Ratings: "Not very likely" and "Not at all likely"



Reduced burden on doctors and nurses



Reduced burden on the health care system and costs



Cost savings to patients

Physician thoughts about PGHD

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Responsibility to take action is placed on the physician from a large amount of unbridled data. You don't want to know little variations. In this way, you don't have any time left to speak to the patient.

“

That patients will unnecessarily visit physicians because of results that the program says are disturbing, while in reality this is not the case.

“

Financial compensation for extra costs and labor.

Physicians (n) = 175

“

Anno 2018, we still work with fax machines!

(Physician)



For physicians, digital organizational tools and devices that enable remote monitoring and data exchange between consumer and clinician are likely to deliver better and more efficient patient outcomes.

Two in five consumers welcome digital organizational tools such as making appointments online, and there is some consumer interest evident in technologies that support remote care and self-management.

	Physicians To what extent might these technologies deliver better and more efficient outcomes for patients? "Very" and "Quite" effective (n=175)	Consumers Would you consider using these technologies in the future?*"Very" and "Extremely" interested (consumer base)
Patients making an appointment online to see a doctor	87%	40% (1,536)
Patients completing doctor or hospital registration details online before their visit	85%	25% (1,722)
Patients using a sensor device that connects to their smartphone to check or monitor health	77%	22% (1,972)
Electronic communications (email, text, social media) between patient and physician	73%	22% (1,760)
Patient sending a photo to their doctor of an injury/health problem via computer or mobile device	73%	21% (1,928)
Patients using an in-home diagnostic test and sending the information to the doctor	62%	22% (1,973)
Consulting with patients by video on computer or medical device	59%	15% (1,960)

* Asked of consumers who have not previously used these technologies

Consumers value their face-to-face relationship with their health professional, but the right levers – including lower cost, time savings and greater convenience – would encourage consumers to engage digitally with their care providers.

For physicians, technology adoption decisions are driven by confidence with respect to patient safety and clinical relevance.

Physicians – health technologies adoption evaluation criteria

How important are each of the following when evaluating whether to select digital health technologies for use in your (practice/workplace)?

Ratings: "Very important"

Physicians



Patient safety



Confidence that technology delivers clinically relevant data seamlessly and securely



Integrates into doctors' workflow and improves efficiency

Consumers – incentives to use digital health technologies

What would encourage you to engage more with your doctor or health professional using digital technologies?

(select all that apply)

Consumers



More efficient (e.g., saves time and money)



More convenient (e.g., do things when it suits me)



More appropriate (e.g., for things that don't need to be done in person)

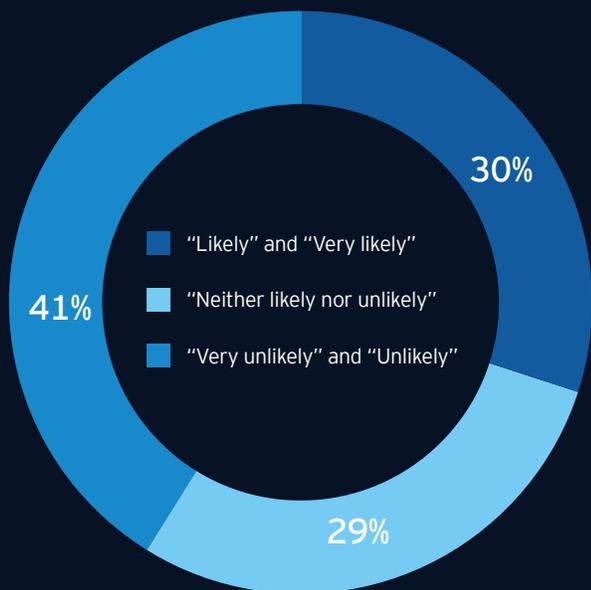
Consumers (n) = 2,038; physicians (n) = 175

If telehealth services were available to manage patients at a distance in real time, around one in three (30%) physicians say it would enable them to be more productive and to look after more patients overall.

Moreover, many stated that a proportion of patients in their practices today could be cared for virtually, reimbursement permitting.

Physicians

How likely would being able to manage patients at a distance in real time allow you to look after more patients overall?



Physicians (n) = 175

If reimbursement for virtual care was commensurate with in-person visits, what proportion of patients in your (practice/workplace) today could be satisfactorily cared for by using virtual consultations?

Proportion of patients in current practice who could be managed virtually	Physicians who say they can virtually manage a proportion of patients in their current practice % of physicians (n)
0%	1% (1)
15%	11% (19)
0%-10%	18% (32)
11%-15%	11% (19)
16%-20%	13% (23)
21%-30%	21% (36)
31%-40%	6% (10)
41%-50%	7% (13)
>50%	12% (22)

Physicians (n) = 175



Health care in
the next decade
will be quite
different from today



The health care system of the Netherlands is well-regarded by physicians, far less so by consumers. For many consumers, there is room for improvement.

Both consumers and physicians see that the health care system has scope to improve the customer service orientation and public health education and that it lags in the introduction of digital health technologies.

We asked survey respondents to think about the Netherlands health care system 10 years from now. All of the technologies we put forward for consideration are currently available, either in the Netherlands or internationally.

Technologies that systematize care delivery systems and processes such as AI, case management and care delivery pathways resonate with both physicians and consumers. The management of clinical conditions such as chronic, complex diseases will likely be underpinned by digital technologies that enable remote teams to care for people in their homes. And, clinically oriented technologies such as AI-assisted diagnostics, imaging analysis and medication management, and precision medicine are expected to become part of the core business of health care.

The changing nature of the health industry is also well recognized. Physicians, more so than consumers believe that new and non-traditional players will enter the health industry, bringing profoundly different ways of approaching the delivery of health and care.

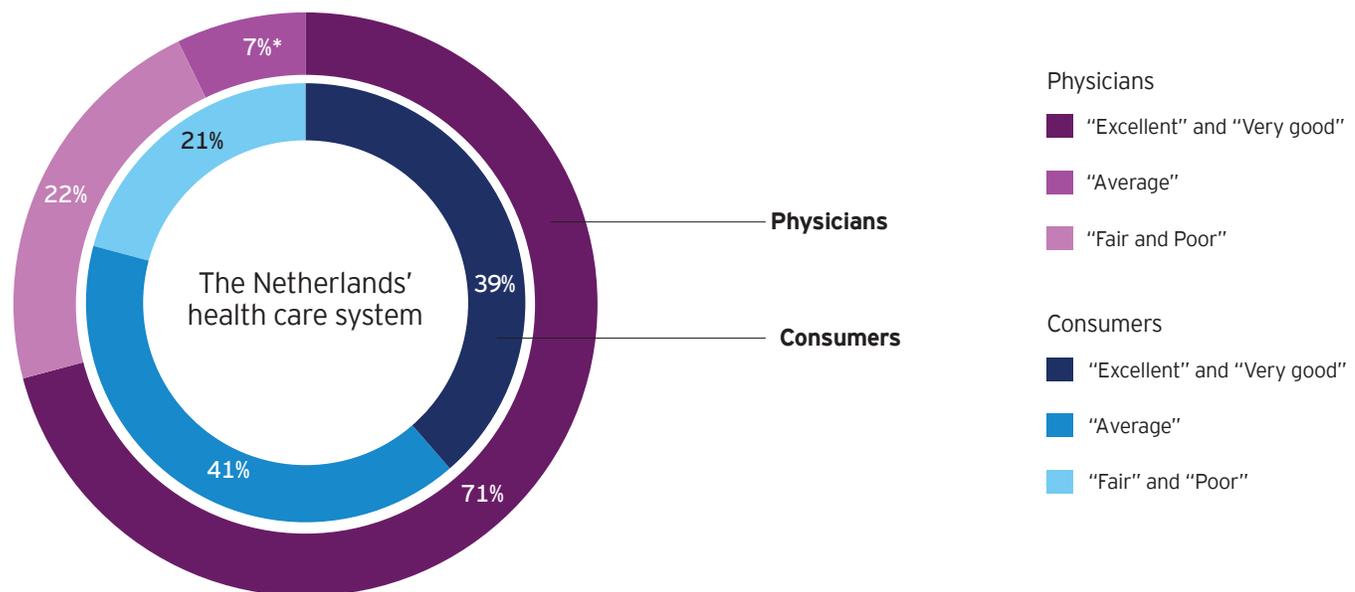
Judgment of health system performance reflects perceptions as to whether the system meets or exceeds expectations.

Weighing system performance overall, the Netherlands health care system is given a high performance rating by physicians, more so than consumers.

Consumers are divided. For many, there is room for improvement.

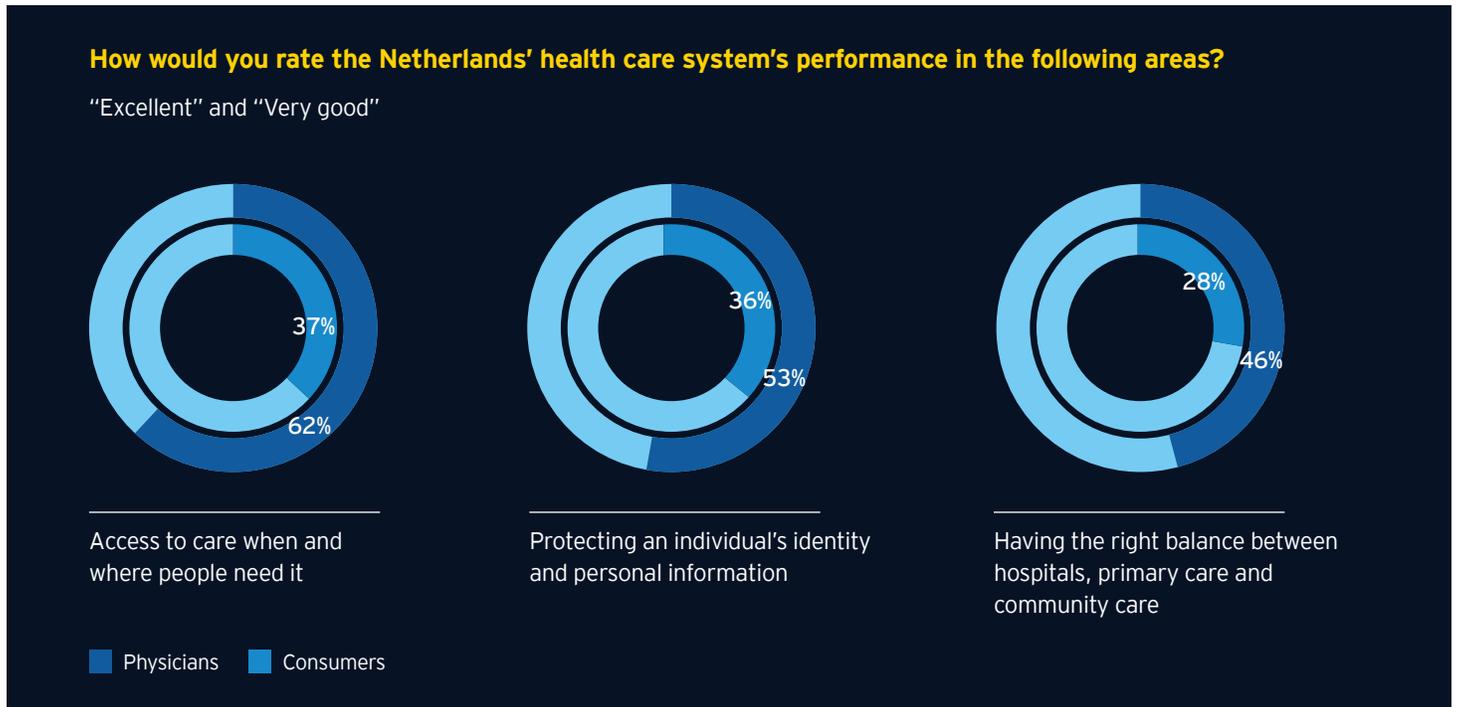
Physicians are more favorable with **71%** rating the Netherlands health system performance as "Excellent" or "Very good," compared with **39%** of consumers

How would you rate the overall performance of the health care system in the Netherlands?



Physicians (n) = 175 Consumers (n) = 2,038 * Small sample, indicative only

Across the many domains that make up a complex health care system, physicians and consumers stated that attributes of the Netherlands' health system – including innovation, public education, customer service orientation and introducing digital health technologies – could improve.



Other areas of health care system performance

"Excellent" and "Very good"

	Physicians	Consumers
Introducing the latest treatments, drugs and medical innovations	37%	27%
Customer service orientation (e.g., positive experiences, convenience)	35%	28%
Educating the public on important health issues (e.g., obesity, diabetes)	30%	36%
Introducing digital health technologies	27%	25%

Some consumers are willing to try alternatives – for example, care in retail locations for non-urgent matters and personalized medicine. Robotics, virtual care and search engine tracking for an enhanced consumer experience are rejected by many.

Consumers

To what extent do the following statements accurately reflect your views?

I am willing to ...

	“Completely” and “Very willing to”	“Somewhat” and “Not at all willing”
Take medications made-to-order for my genetic profile	39%	26%
Undergo genetic testing to see if I might develop certain diseases or disorders	36%	36%
Have non-urgent care from a health professional at a mini-clinic in a department store, supermarket or pharmacy	34%	37%
Be treated via on-demand e-visits for common acute symptoms (e.g., cough) instead of in-person visits	25%	43%
Have a health condition treated with a high-tech product, e.g., smart pills that travel in my blood and transmit messages to my phone	24%	47%
Be treated via a virtual hospital - one with no beds, that delivers basic and advanced medical care through digital consultations and remote patient monitoring	19%	50%
Receive a diagnosis, drug prescription or undergo surgery by a robotic device	16%	55%
Allow global search engines and social networking sites to store my personal information and track what I do online to get a better user experience	11%	64%

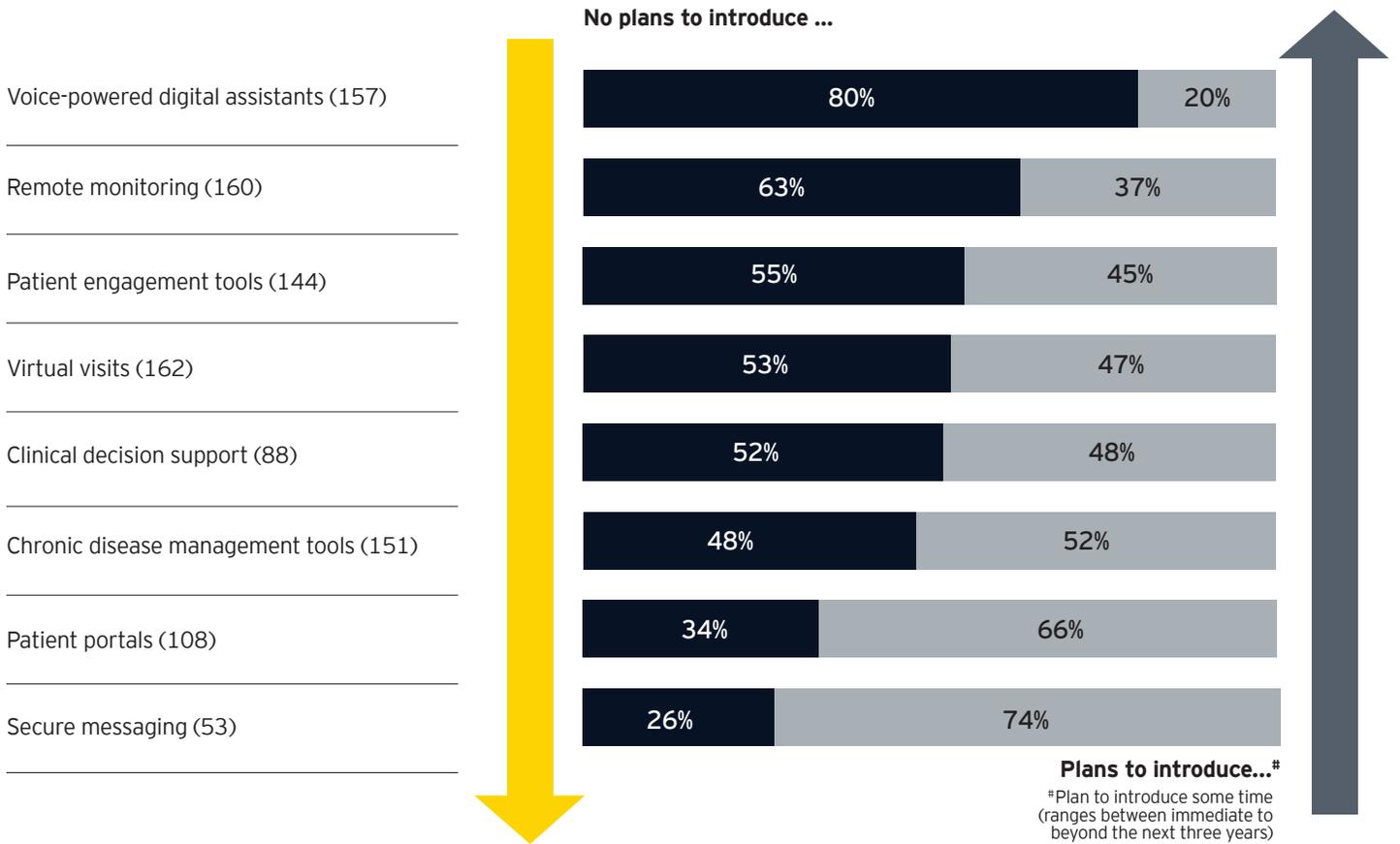
Consumers (n) = 2,038

Physicians are planning to get on board and introduce a range of health technologies – including patient engagement tools, patient portals and chronic disease management tools – in the near future.

Physicians

Do you plan to introduce any of these digital health technologies in your (practice/workplace)?*

(base)



*Question answered by those who indicated they did not currently use some/all of the listed technologies. Bases vary.

Digital technologies are seen to hold promise for the future – in particular, enabling complex patient care at home. In the next decade, artificial intelligence technologies are expected to become commonplace and smartphones to form a primary interface between consumer and provider.

Even though virtual services (e.g., virtual hospitals, virtual reality) are considered by many as less likely to become incorporated into the core business of health care in the next decade, there is a degree of anticipation surrounding this.

In the next decade ...

To what extent do you believe the following will likely occur in the health industry in the Netherlands in the next 10 years?

Ratings: "Very likely" and "Quite likely"

	Physicians	Consumers
Digital technologies will enable care teams to remotely coordinate complex patient care	61%	48%
AI technologies will be commonly used for diagnosis, medical imaging analysis and medication management	59%	44%
Smartphones will become the primary interface in the health system, allowing people to manage and improve their health and wellness anywhere and at any time	55%	40%
Precision medicine technologies such as DNA sequencing will become a routine part of preventive primary care	49%	38%
Companies from outside the health industry will enter the health industry with profoundly different approaches to health care	48%	35%
Virtual presence (e.g., through a virtual reality headset) as a substitute for a health professional being physically present	33%	30%
Virtual hospitals with no beds will deliver both basic and advanced medical care (e.g., stroke evaluation) through digital e-consultations and remote patient monitoring	18%	29%

Physicians (n) = 175; Consumers (n) = 2,038



Maturing health care consumerism and transformative digital technologies will align to create a powerful force for change

Digital solutions are diffusing through the health care system – although, as we found, slowly and unevenly.

In the Netherlands, digitally savvy consumers are running ahead of physicians in their enthusiasm for consumer-facing digital health technologies. Accustomed to on-demand and self-directed experiences in other areas of their digital lives, these consumers look for something more from the health sector. They welcome the flexibility and choices that technologies bring to meet their growing expectations of convenience, personalization and navigation support throughout their lifelong health journey.

Physicians' priorities lie with clinical and practice support tools and uptake is widespread. Physicians expect that digital health technologies will likely improve productivity and deliver better patient outcomes; however, use of patient engagement technologies is currently low. This will likely change as national programs to fast-track the uptake of technologies such as patient portals gain momentum. There are signs that physicians are planning to get on board. In the near future, many are looking to introduce technologies that support the patient journey to health and wellness, such as remote monitoring, chronic disease management tools and, for around half, virtual visits.

In the next decade, the core business of health and care is expected to be anchored around digitally enabled models of care, including remote delivery, AI-supported diagnostics and analytics, and interactive person-centered tools. Connecting, combining and developing meaningful insights from the volumes of data generated through tech-enabled care models will be a powerful tool in delivering patient-centered, intelligent and connected health care.

Implementing eHealth is a policy priority, and the Netherlands is considered one of the leading countries in driving eHealth in Europe. (Currie 2014) But as our study found, while many consumers search for information, the adoption of such things as patient engagement and chronic disease management tools by both physicians and consumers is low. This is consistent with other studies in the field (Kroneman et al. (2016); Huygens (2015)).

As the system transitions from a traditional care model to eHealth and one that is demand-side driven, the challenge lies in convincing both consumers and physicians that tech-enabled care is a viable and safe way of health care delivery. This will require bridging the gap between the potential that digital health technologies offer and shifting consumer and physician sentiment. Human-centered design approaches to health and care and a focus on optimizing the patient experience will be paramount in designing compelling care experiences.

Old habits are hard to shake.

As new forces reshape the health industry, four questions to consider are:

- 1 Value will be increasingly consumer-defined and built upon digitally based customer engagement. What steps must physicians and others in the industry take to transition from a supply-side view of value to get the patient experience right?
- 2 A new digital ecosystem will demand a new operating model for physicians. How best can physicians reimagine their use of digital technologies to incorporate both their clinical needs and those of patients to address the growing digital divide between consumer expectations and physicians' current service delivery model?
- 3 To survive and thrive means embracing digital technologies or risk being left behind. For decision-makers weighing making small or large digital health technology investment decisions, what does success look like?
- 4 Fight, flight or an opportunity for partnering? Will technology enabled disruptive new entrants force a redesign of existing industry business models? If so, how best to respond?

Currie WL and JJM Seddon. A cross-national analysis of eHealth in the European Union: Some policy and research directions. *Information & Management* 2014, 51 783-797

Huygens MWJ, et al. Internet services for communicating with the General Practice: Barely noticed and used by patients. *Interact J Med Res* 2015 Vol. 4 Issue 4

Kroneman M, et al. Netherlands. Health system review. *Health Systems in Transition* Vol 18 No 2. 2016

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For complete report materials, please visit ey.com/consumerhealthsurvey.

Thank you to Bart Breggeman, Erik Vermeulen and Dr. Merijn Eskes for their assistance with this project.

About the study

In July 2018, EY surveyed online 530 physicians and 6,113 health care consumers in three locations: Australia (177 physicians and 2,044 consumers), England (178 physicians and 2,031 consumers) and the Netherlands (175 physicians and 2,038 consumers). Physicians included GPs/primary care practitioners and specialists and respondents worked in a variety of practice settings, including solo, group and hospitals. Consumer data were weighted to reflect population and geographic distributions. The survey was translated into Dutch.

In this study, we define digital health technologies broadly as an array of technologies that underpin different ways of delivering health and care to support participation and drive better health outcomes, improve quality of care and optimize business models.

The objective of the study was to examine consumer and physician attitudes and propensity to use digital health technologies for health and wellness, as well as to explore willingness to engage with future health care technologies that are accelerating the changing face of health care. Specifically, to:

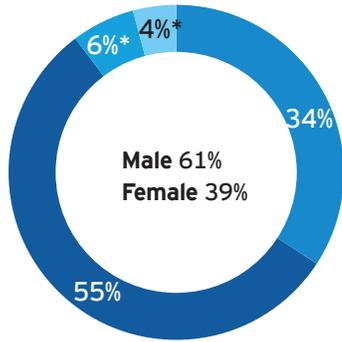
- ▶ Develop an understanding of consumer engagement with the health care sector and health-related technology adoption and usage
- ▶ Develop an understanding of physician attitudes toward and perceived benefits derived from health care technologies
- ▶ Explore perceptions about and willingness to engage with upcoming digital health technologies

In the next decade, the core business of health is expected to be anchored around digitally enabled models of care



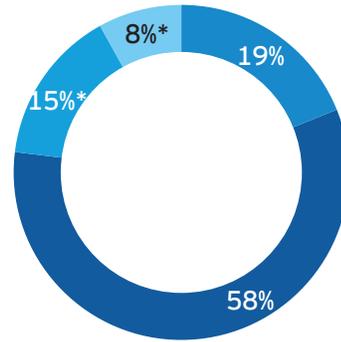
Sample profile: Physicians

Age and gender



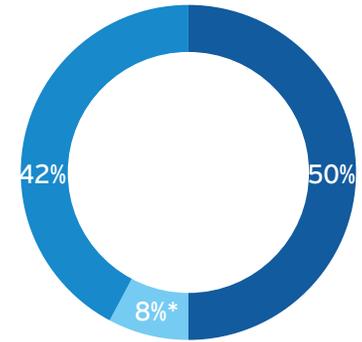
- 18 to 29
- 30 to 44
- 45 to 64
- 65+

Location



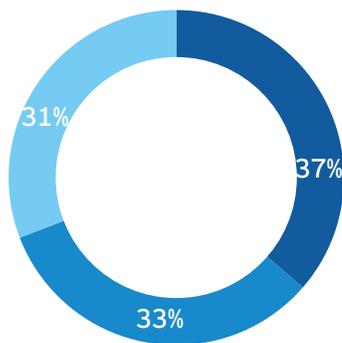
- North (Drenthe + Groningen + Friesland)
- East (Flevoland + Gelderland + Overijssel)
- West (North Holland + South Holland + Utrecht + Zeeland)
- South (North Brabant + Limburg)

Practice/facility



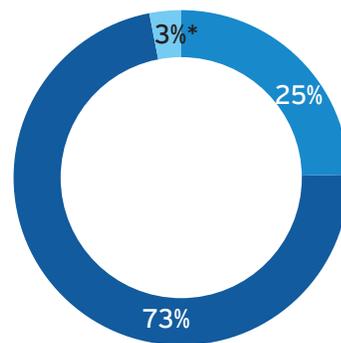
- GP/Primary care practitioner
- Specialist
- Facility-based (public, private hospital, aged care facility)

Enviorns



- A capital or large city
- A medium or small-sized city
- A regional town, rural or remote area

Years of practice



- Less than 10 years
- More than 10 years
- Would prefer not to say

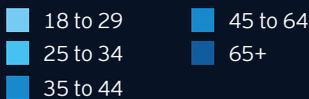
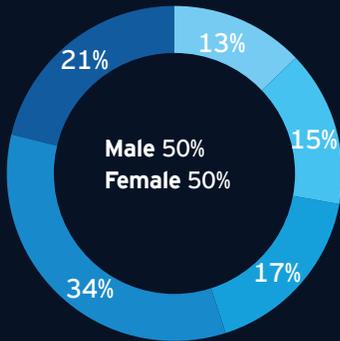
Physicians (n) = 175

*Small sample

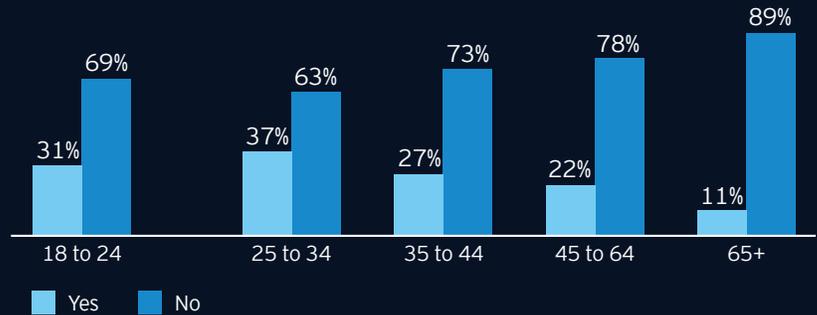
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Sample profile: Consumers

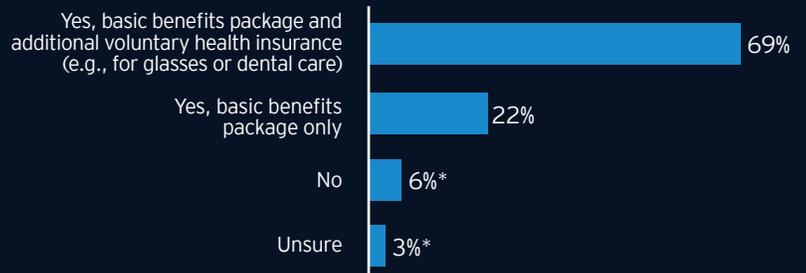
Age and gender



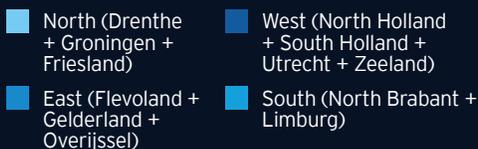
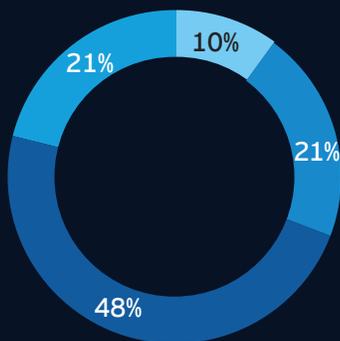
In the last 12 months, have you delayed or decided not to seek medical care because of cost?



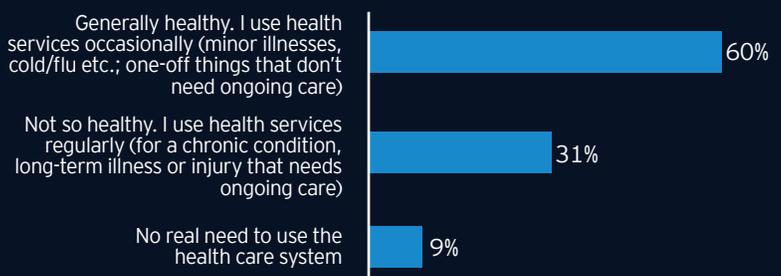
Are you currently enrolled in a private health insurance policy that helps to pay for health care expenses?



Location



Which of the following would best describe your use of the health care system at this stage of your life?



Consumers (n) = 2,038
Data are rounded

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

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Around the world, the health sector is being reimagined in the face of aging populations, increased prevalence of chronic diseases, growth in emerging markets and shifting reimbursement models. Health care organizations must address these challenges while mastering the digital innovation that offers both opportunities and threats. Technology empowers patients, real-time analytics improves care and enables a mind shift towards prevention - but also opens the door to new non-traditional competitors. EY works with clients to reposition and optimize their business models, people strategies and operational structures to address cost pressures while leveraging the potential of analytics and technologies to improve quality of care. In this way, we help health organizations stay competitive and deliver better patient outcomes both now and in the future.

EY Global Health Sector brings together a worldwide network of more than 6,000 sector-focused assurance, tax, transaction and advisory professionals with a range of health care and business backgrounds. Our wide-reaching network allows us to rapidly share leading practices and solutions around the globe and deploy diverse delivery teams to meet your needs. ey.com/health

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ED None

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