



Building a better
working world

What connections will move health from reimagining to reality?

New Horizons | 2019 edition

An EY NextWave Health report



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

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Introduction



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It is a pleasure to once again present *New Horizons*, the annual EY collection of insights for health executives. This year's issue showcases thoughtful, data-driven insights and examples of innovation and lessons learned from a number of health industry leaders.

Last year we focused on the duality of growth: the challenge of strengthening today's core business while preparing to meet the challenges of an increasingly more connected, consumer-centric health ecosystem. While that dynamic is a perennial consideration, we are shifting the conversation a bit this year. The discussions with EY clients have evolved from reimagining the health ecosystem and their place in that future. Attention has instead moved to how best to build that future – to executing on that vision.

The most common theme of these conversations is connection. Connecting people to the goods and services that will keep them well; to physicians when they need clinical intervention; and to each other, so that they stay engaged as they age. A key focus, too, is connecting health businesses so a more complete picture of the consumer can be seen and optimal, personalized care can be delivered. This year's theme, then, is moving past reimagining to building – building for what comes next, after and beyond. For more on our view on a connected health ecosystem, visit ey.com/healthconnections.

EY teams are delighted to present you with four articles that build on this theme – connections – as well as a few captivating interviews that demonstrate how that vision is being put into practice in the market today.

The first EY article deals with the promise digital technologies offer our sector and how to usefully embed them into core business operations. Using survey data gathered from several countries, we lay out consumer and physician expectations for a digitally enabled, connected health ecosystem. Although we have found a gap between those expectations and implementation to date, in the article we outline several considerations to keep in mind when building digital health capabilities that will close this gap.

The second EY article, we consider how to create a path from the present, fee-for-service state to a future centered on value – one that equips providers to improve outcomes for patients at a lower cost while reducing the risks for payers. We discuss how focusing on the patient experience can be the bridge to building a culture that embraces value-based care (VBC). By including

patient and physician experiences in the VBC equation, health organizations provide better care, increase the satisfaction of their employees, and keep people engaged with their health. This reduces the chance that patients will slip out of the network, thereby improving revenue and providing access to the data health organizations need to improve operational efficiency and population health.

We next turn our attention to the world of private equity (PE), which continues to demonstrate a keen interest in the health sector. We again use data gathered by EY teams to examine the impact PE firms are having on the sector. Notably, health businesses achieve the best outcomes when they partner with firms that have sector experience. Overall, we find these partnerships help with the business of today and the business of tomorrow. Health companies obtain ready access to capital so they may build the capabilities needed to compete in the evolving health ecosystem. They can also draw on PE firms' operational expertise to improve efficiency and focus today.

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A key focus is connecting health businesses so a more complete picture of the consumer can be seen and optimal, personalized care can be delivered.

In the final EY article, we again raise the issue that health incumbents have long acknowledged: clinical care is only a small contributor to health and well-being. The health sector is becoming more consumer-centric, participatory, outcomes-based and cost-efficient. And the technologies that will get us to a connected, wellness-oriented, anytime, anywhere health ecosystem are available today. Using those tools requires an information technology infrastructure that is built around data persistence, extensibility and true interoperability. It is an essential first step to implementing the amazing technologies at our disposal such as intelligent automation, artificial intelligence, predictive analytics, and integrated enterprise resource and clinical operations management.


Thank you for being a part of the conversation again this year. We look forward to personally engaging with you on these topics soon. In the meantime, please visit [EY.com/health](https://ey.com/health) for more EY health sector insights.

Wishing you much health and success,

A handwritten signature in black ink that reads "David Roberts". The signature is fluid and cursive, with the first name "David" and last name "Roberts" clearly distinguishable.

Article 1





Can we unlock the power of digital health technologies and make the leap from promise to practice?

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At EY, we spend a lot of time thinking about how the health care ecosystem is evolving toward a consumer-centric and prevention-focused future.

In the recent EY NextWave Health survey* of over 8,500 consumers and 650 physicians in four countries, it became clear that over a relatively short period of time, how we go about delivering care and pursuing health will fundamentally change. In the next decade, health care consumers and physicians expect that the core business of health will be anchored around digitally enabled models of care, including virtual delivery and interactive person-centered tools.

David Roberts
EY Global Health Leader

*Read the survey report at ey.com/consumerhealthsurvey

Digital health surrounds us

Digital health technologies are tools that accelerate broad changes in the health sector on two key fronts: shifting the care model to preventive, personalized and participatory and the care location to anywhere, anytime. These technologies make possible a suite of new offerings around well-being, remote care, smart homes and communities, and enterprise solutions behind the scenes.

On the horizon for providers, payors and health systems are mastering and putting into practice the promise of digital innovation so that in the future, “digital health” will just be “health.”

Disrupting old ways with new tools

To date, uptake of digital health technologies has been somewhat messy – with pockets of activity directed either toward a specific condition or an operational or administrative problem. In a fast-moving and early-stage environment, an incremental approach makes sense, targeting problems that are amenable to a digital solution.

There are however, some notable exceptions. Estonia, for example, transitioned to a health economy after

leaving the Soviet bloc, introducing a comprehensive digital health system underpinned by blockchain technologies that includes electronic health records, patient portals, e-prescriptions and more.¹ The Netherlands, considered one of the leading countries in driving eHealth in Europe,² is pursuing a digital-first policy with national programs to fast-track the uptake of technologies such as patient portals and broad access to eHealth services.³

The market and policymakers clearly anticipate that the future of health care lies with digital. In the US, around US\$8.1b venture capital investment was directed into digital health startups in 2018, a rise of 42% over the preceding year.⁴ Global tech giants are taking a position across the health value chain, in the spaces of wellness and preventive care.⁵

Policymakers are placing big bets on the promise of digital health technologies to disrupt old ways with new tools to improve outcomes, increase patient engagement and moderate the growth of costs. In the United Kingdom, the NHSX initiative sets out an ambitious strategy, investing over £1 billion a year, to modernize publicly provided health and social care services through digital transformation.⁶ A further £250 million will be invested in a creating an

artificial intelligence (AI) lab to reap the benefits of such technologies in the early detection of cancers, and along with industry and academia, to develop innovative treatments and free clinician time for direct care.⁷ In the US, the Centers for Medicare & Medicaid Services (CMS) has undertaken a long journey toward recognizing remote monitoring and patient-generated health data,⁸ announcing new payments that will stimulate the provision of remote care, including virtual patient-physician check-ins and physician evaluation of remotely recorded video or patient submitted images.⁹ For further insights, see the article in this edition of *New Horizons* on creating infrastructure for digitally enabled change.

Consumers are interested in tech-enabled care

Nevertheless, in our NextWave Health survey, consumers say there is room for innovation. At best, one in four judge their health system to be innovative compared with other digitally transformed industries such as retailers or banks. (See box.) What's more, both consumers and physicians consider that health systems lag in introducing digital health technologies. (Figure 1)

Room for innovation

Compared with other industries (such as online retailers or banks), consumers rate their health sector as:

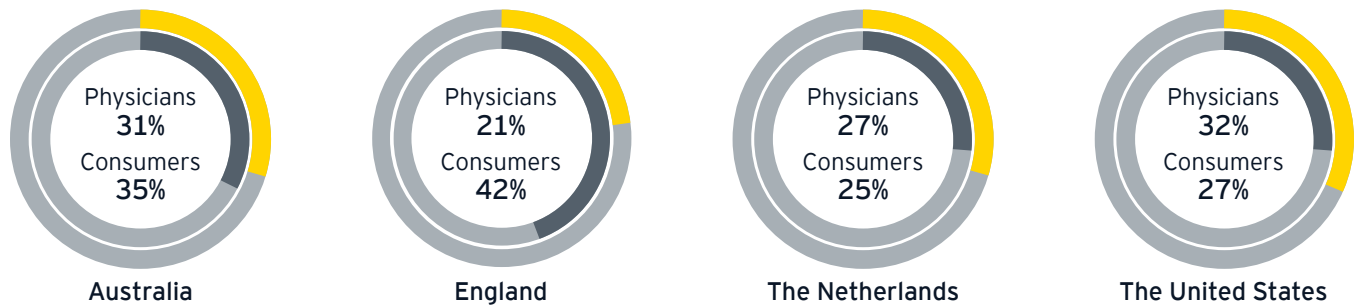
	Innovative	Average	Not innovative
Australia	17%	60%	23%
England	25%	52%	23%
The Netherlands	15%	65%	20%
United States	21%	57%	22%

Consumers: Australia (n) = 2,044; England (n) = 2,031; the Netherlands (n) = 2,038; United States (n) = 2,428

Figure 1: For consumers and physicians, health care systems lag in introducing digital health technologies

How would you rate your country's health care system's performance in introducing digital health technologies?

■ Physicians ■ Consumers



Consumers: Australia (n) = 2,044; England (n) = 2,031; the Netherlands (n) = 2,038; United States (n) = 2,428
 Physicians: Australia (n) = 177; England (n) = 178; the Netherlands (n) = 175; United States (n) = 158

Ratings: Australia/England/the Netherlands show Top 2 ratings on a 5-point scale of "Excellent" and "Very good";
 United States shows Top 2 ratings on a 7-point scale where 7 is "Excellent"

Today's challenge for health systems worldwide is how to unlock the power of digital health technologies as an enabler of real system change. (See "Unlocking the power of digital to improve health outcomes – 5 trends") Whether this be the uphill task facing emerging economies to bring all-important essential services to their populations; securing equitable access to health services for underserved and remote populations; or resolving the sustainability and demand pressures that are taxing the health systems of developed economies.

But achieving a digitally driven health care system at scale is immensely complex, especially in an industry notoriously slow to change. For the health industry, it is time to move beyond being concerned with impending disruption. That's already well underway.

The case for change is clear, driven by a curiosity about how to meet people's health needs by doing things better, smarter and faster, and at an acceptable cost. Thinking needs to shift to a more tactical focus – how to introduce and realize the benefits of digital technologies in a complex care system as a central pillar of business as usual.

Unlocking the power of digital to improve health outcomes – 5 trends

- 1 Data will be better connected, combined and shared across the health ecosystem
- 2 A "digital backbone" will emerge across the industry, transforming the patient-consumer end-to-end experience
- 3 Workforce engagement and patient interaction augmented by virtual agents – often behind the scenes – frees up valuable face-to-face time
- 4 Digital underpins the shift in care location to the home
- 5 Demand-driven global marketplace based upon digital platforms will deliver network effects, value and benefit

“

The intersection of Social, Mobile, Analytics, Cloud and Sensor (SMACS) technologies gives the health care industry new ways in which to understand and interact with patients, families and carers. Persuasive technologies, behavioral economics, behavioral sciences, increasing miniaturization of devices and proliferation of tracking methods deliver insights about consumer behavior and how individuals make decisions. Better insights derived from better data underpin the shift to value and support care in the community.

Aloha McBride

EY Global Health Advisory Leader

Are we there yet?

Telehealth is not new. Communication technologies have long been harnessed to play a role in the health system – use of the newly invented telephone to cut out unnecessary physician office visits was suggested more than 120 years ago!¹⁰ What we consider today as digital health is a broad array of technologies that underpin different ways of delivering health and care to support consumer-patient participation and drive better health outcomes, improve quality of care and optimize business models.

And this fits well with our times. Our environment is being reshaped by the exponential growth of innovative technologies and telecommunications, social networks, and deeply held expectations of participation.

The digital life has been adopted by consumers with enthusiasm driven by a deep reach of fast and inexpensive broadband, rapidly growing mobility and ever-increasing functionality of cheap devices. Forthcoming 5G networks will deliver universality and superior responsiveness of applications with faster mobility, lower latency

and better connectivity. These will support Internet of Things (IoT) patient applications outside of the hospital environment, health programs that draw upon complex functions such as virtual reality, and industrialization of medical data management.

A growing body of evidence

While it has been observed that many digital health products and services target healthfulness and preventive actions in a direct-to-consumer model,¹¹

a body of evidence is slowly emerging around the provision of value and outcomes for patients, and for the health care system.

Virtual consultations, for example, have been found to be acceptable to patients, and to improve outcomes or have no difference in outcomes to care as usual, in such diverse areas as diabetes, chronic obstructive pulmonary disease (COPD), chronic pain, post-surgical support and caring for the elderly.^{12,13} Virtual visits (both synchronous and asynchronous) have been reported as cost-effective for those with limited access to mental health services,¹⁴ and remote monitoring supports delivery of a vast range of care outside of the hospital that conventionally has required hospitalization.¹⁵ For example, acute exacerbations of COPD, asthma and community-acquired pneumonia have been found to be safely treated outside of the hospital, at a lower cost, and with a positive impact on patient satisfaction.^{16,17}

What the customer doesn't see, behind the scenes

Behind the scenes, optimizing asset performance, supply chain and inventory management and elimination of waste arising from practice variations contributes to improved efficiencies, greater return on investment, and better outcomes for patients and staff.

For example, asset tracking and inventory management systems use radio frequency identification (RFID) and inventory management software to digitally connect and track the movement of medical assets within a hospital. Robots are not only used in

some surgical procedures and medical education, but also have applications in prescription dispensing, sanitation and disinfection, and transporting equipment and supplies. Blockchain technologies can guarantee the safety and integrity of biomedical and pharmaceutical products, and as the care model increasingly shifts to patients being cared for at home, cloud-based inventory management systems will provide the timely delivery to the home of medical supplies and pharmaceuticals.

Health systems of the future are expected to be smart: connected to deliver operational efficiency and clinical excellence in a patient-centric model. Smart means that algorithms (analytics, machine learning and other AI technologies) and robotic process automation (RPA) tame the wave of user-generated and clinical data. Not only is the infrastructure optimized, but the system is squarely focused on the patient and staff experience. Knowledge drawn from such diverse areas as systems engineering, municipal management, and oil and gas exploration has been leveraged to design digital capabilities that optimize patient flow within hospitals.¹⁸ In 2018, for example, Tacoma, Washington-based CHI Franciscan Health, now part of CommonSpirit Health, was the fifth hospital to join a state-of-the-art "command center" ecosystem. An AI-powered command center, often compared to an air-traffic control center, lies at the heart of such systems. Real-time monitoring of patients enables the hospital to synchronize care delivery, reduce errors and predict pressure points. Humber River Hospital in Canada was an early adopter, opening one such center in 2017, which, along with hospital-wide digital

transformation, is expected to improve hospital efficiency by around 40%.

In the next decade

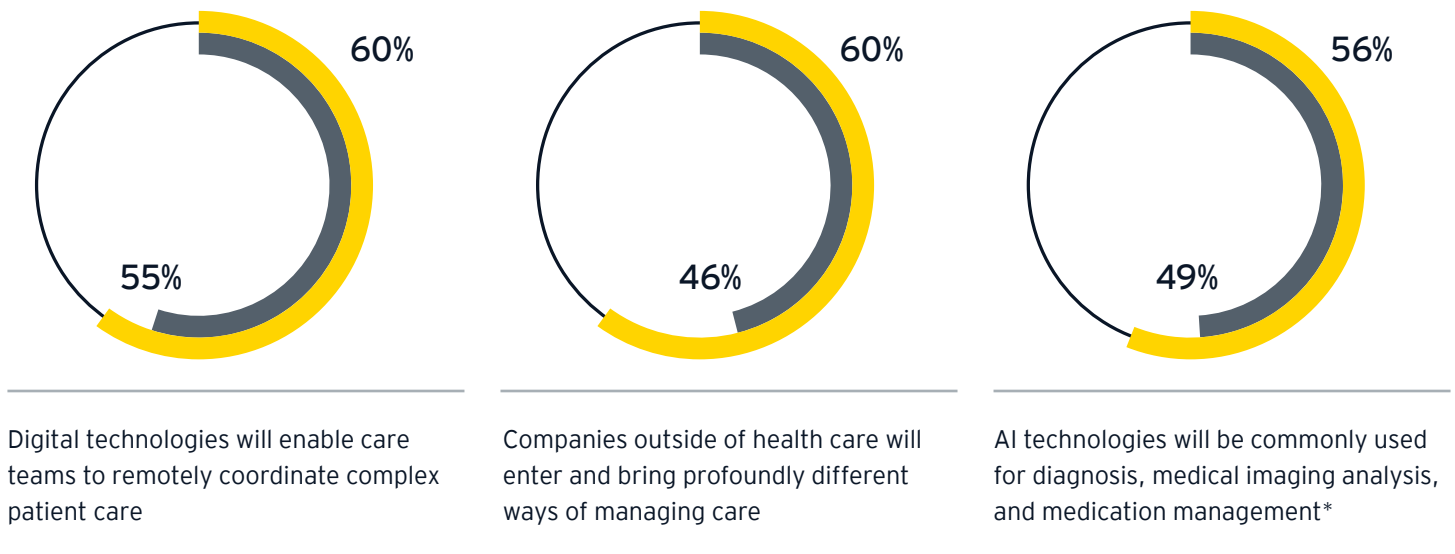
Both consumers and physicians in our survey consider that remote monitoring technologies and AI technologies will be central to health care provision within the next 10 years. The management of chronic and complex diseases will likely be underpinned by digital technologies that enable remote teams to care for people in their homes. In isolation, a mobile device is of limited benefit. The real value arises when connected to a suite of services through a platform, and both consumers and physicians expect that the smartphone will become a portal, the gateway by which we access data, make informed decisions and interact with the health care system. (Figure 2)

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 medicine. Physicians more so than consumers anticipate that new and nontraditional players will enter the health industry, bringing profoundly different ways of approaching the delivery of health and care. (Figure 2)

The idea of virtual care is intuitively appealing – a seemingly easy solution to quickly resolving a health issue, 24/7 – for reasons of convenience, less time away from work, eliminating travel time or just easier access to care out-of-hours. Despite this, virtual services are not a highly anticipated innovation by our survey respondents. And yet, around one-third or more of both physicians and consumers see virtual

Figure 2: In the next decade, digital health technologies will become commonplace

■ Physicians ■ Consumers



■ Physicians ■ Consumers



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

* US response option asked "Artificial intelligence technologies will be commonly used"

Ratings: Australia/England/the Netherlands shows "Very likely" and "Likely" ; United States shows Top 3 (5-7) ratings on a 7-point scale, where 7 is "Strongly Agree"

Physicians (n) = 688; Consumers (n) = 8,541

presence technologies (physicians 38%, consumers 36%) and virtual hospitals (physicians 32%, consumers 40%) being likely in the near future.

These new care models may seem to be just a little too far over the horizon. However, they are already in play (for example, Mercy Virtual Care Center and Intermountain Health's Connect Care Pro). It is interesting to note that in China, a vast aging population and hospital overcrowding are some of the many issues driving growth in China's digital health space. A new category of internet hospitals is emerging that use digital medicine platforms as substitutes for outpatient consultations in remote provinces, and through apps, give consumers capabilities to schedule appointments and view their test results.¹⁹

What gets in the way?

If it really does take the often-quoted average of 17 years for a technology to diffuse through the health industry,²⁰ then in the face of rapid technological innovation, health care is facing a "pacing problem" in its digital health journey. Emerging technologies have developed at a speed that has outpaced policy and regulatory cycles and payment mechanisms, let alone large-scale adoption.

While there are some clear success stories around how digital health technologies can effectively improve care quality and enterprise efficiency, some considerable barriers exist to adopting such technologies.

Health care organizations are not natural digital natives. Their strengths typically don't lie in building new

businesses that combine digital know-how with clinical, administrative and health system expertise. A dynamic marketplace and a policy environment that requires safety and quality to be confirmed mean that barriers to uptake and diffusion are broad-ranging. Big picture policy issues concerning the definition and regulation of digital health technologies; differing perspectives regarding evidentiary standards (gold-standard RCT evidence vs. "fail fast and often" approaches of entrepreneurs); and the timing and scale of capital investment required, not to mention cost and reimbursement, are just some of the constraints.

Human factors such as clinical appropriateness and fit with the patient are paramount. Cultural resistance to changing practice patterns, professional roles and career trajectories, clinical concerns around efficacy and potential liability, and staff and patient digital literacy are also key influences on digital health technology adoption or abandonment.

To press forward with an innovation and change agenda

It was clear in the EY research that over a relatively short time, health care is expected to be digitally driven. Consumers and physicians view the widespread deployment of these technologies as convenient and beneficial. A growing body of evidence suggests positive clinical and operational outcomes.

At the same time, health care systems and consumers are still learning, but are open to and accepting of vastly different new care models that are technology-

driven, such as virtual hospitals. Clearly, one future and vital challenge for the health industry to address is how to retain the human touch of health care while absorbing all the many advantages that digital innovations will offer.

Health care organizations need to have more than just a strategy for innovation. Getting the technology elements right, more often, demands a great clarity around what is being solved and clear articulation of what success will look like. A change in culture is vital. Health organizations will need to become more agile and look to build, buy or partner for solutions that bring the organization up to speed and are compatible with the organization's purpose. As Figure 3 shows, health care organizations and health systems contemplating change will need to weigh three conditions that we believe are necessary to achieve this – creating an overarching strategy of digital transformation, optimizing performance through agile business transformation and pursuing deep-seated cultural change.

The road ahead is shaped by several givens – people will always form the core of why health and care exists, and technologies will always improve and open new horizons. To pivot toward a new future requires establishing a solid base of foundational and advanced digital health technologies that turn promise into practice. Consumers are unlikely to wait for the health system to catch up – with their ever-present and always-on devices, they don't have to.

Figure 3: Three key elements that are important to system transition

1

Digital strategy and transformation

- ▶ A new digital ecosystem will demand a new operating model built around digitally enabled products and services, routinely and efficiently used in daily practice.
- ▶ Technologies and innovation systems that move services and facilities from connected ... to digital ... to smart.

2

Business processes, performance and automation

- ▶ Design + digital + data in combination to focus upon enterprise performance and support operations and care delivery through intelligent automation of front and back-office processes.
- ▶ Build, buy or partner to create an ecosystem to bring the best services and solutions to the patient-consumers and population.

3

Trust, risk and cultural change

- ▶ Through user experience strategies and human-centered design, deeply understand the customer - the healthcare consumer, the physicians and administrator stakeholders
- ▶ Embed trust, risk management and cybersecurity into products and services from the outset to deliver end-to-end consumer and staff return on experience



FEATURED INSIGHT

What lies in the future for hospitals?

Agnostic to location, health care with no address – or bringing care to the consumer or patient rather than expecting the patient to go to the hospital – is a vital sign of the next wave in health care.

Hospitals and health systems in many countries are transforming their organizations toward this more patient-centric, participatory future. Yet, the transition isn't easy. They move toward value even while the majority of their revenue is still based on volume. They increasingly provide anywhere, anytime care even though they've invested in capital-intensive, brick-and-mortar facilities over many decades. While complex and high-risk cases and trauma care within a hospital will always play a vital role, care models, across the board, are migrating to lower-cost settings.

Digital health technologies are the enablers to change the “how” in health care. The bedrock of this disruption is the shift from a supply-side push of services out to the consumer, to one where the pull of consumer demand determines value and activity. Three shifts, made possible by digital transformation, are moving health care toward a highly personalized, participatory anywhere and anytime system.

1

Convenient care
anywhere, anytime

2

Moving from digital
to smart

3

Managing the social
determinants of health,
not just clinical care

Future health systems will be digital, personalized and population-focused

As health care moves to a virtual platform and medical technologies advance to support most procedures being done outside of a hospital, the future for hospitals lies with playing to their strengths and becoming part of the digitally orchestrated network of the future.

For some, this might mean concentrating expertise through a niche focus on an area of medicine; for example, investing capital, equipment and training in highly targeted areas such as oncology, cardiology or specialty surgical procedures to become a Center of Excellence providing gold-standard care.

For others, the future may lie in assuming a leading role in the broader health system. By becoming the anchor or hub in their communities, hospitals can play a critical role in linking and strengthening the health system as it moves to anywhere, anytime care – sparking and supporting innovation in clinical practices and systematically tackling the social determinants of health, namely the 80% that occurs outside of clinical care. Hospitals can drive health goals around prevention, population health and quality of life outcomes.

To bridge the gap between the health care organization of today and the vastly differentiated system of tomorrow, providers will need to tackle the duality of growth. Taking care of the health care organization of today while innovating to build the health system of the future means tackling hard choices around the legacy organization – where to divest, revitalize or pursue innovation. This means not only optimizing supply-side efficiencies through reducing cost and driving productive efficiency, but also deeply understanding the transformative impact of digital health technologies on the ecosystem.

About the survey

In 2018, EY teams undertook a four-country online survey that examined consumer and physician attitudes and propensity to use digital health technologies for health and wellness. It also explored consumer and physician willingness to engage with future health care technologies that are accelerating the changing face of health care.

Total respondents were 688 physicians and 8,541 health care consumers in four locations: Australia (177 physicians and 2,044 consumers), England (178 physicians and 2,031 consumers), the Netherlands (175 physicians and 2,038 consumers) and the United States (158 physicians and 2,428 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 was weighted to reflect population and geographic distributions.


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Article 2





How redefining value in health care is leading to new ways of delivering care

Health systems around the globe face a variety of pressures: aging populations, increasing chronic disease rates, more demand for care and rising costs. Providers, motivated by their desire to care for their patients (and the moral imperative to do no harm), have sought to provide the highest-quality care. However, they must also generate income. The unlooked-for result has been fee-for-service systems that emphasize volume over value. Stakeholders recognize that a business-as-usual approach to health is no longer sustainable.

Many have reimagined a health ecosystem capable of meeting the challenges the sector faces today (including changing consumer expectations) and are moving toward value-based care models. This shift requires a new approach to care delivery and new business models, as it places more emphasis on patient outcomes than the volume of treatments. Given the intensely entrenched culture of fee-for-service and supply-driven models in which payments are made for every visit, introduction and adoption of new approaches will take time. As the focus on value-based health care (VBHC) intensifies, developed markets will adopt more sophisticated outcomes-based models while emerging countries will implement leading practices suitable to their local needs.

Valuable to whom?

Value-based care is an approach in which providers seek to achieve the quadruple aim of providing better care for patients and better health for populations at a lower cost in a manner that prevents provider burnout. It rewards and reimburses health care providers for quality care rather than the number of visits.

Fee-for-service models of care incentivize procedures, and it can be difficult for health consumers and payors to determine the components of care that are most predictive of good outcomes. The patient experience often gets ignored in this model (only large systems account for it). And physicians may be experiencing actual harm from trying to balance their genuine desires to serve the needs of their patients against following the revenue-driven policies that keep a health system running (see inset).¹

This can set up a dynamic tension between the plan model (payors) and the delivery system model (providers). Payors are focused on managing financial risk; they manage a limited

Physician burnout has attracted a good deal of attention, but the concept of “moral injury” has been gaining acceptance as contributing to physician dissatisfaction and low levels of well-being. Dr. Abi Sundaramoorthy, System High Reliability and Safety Officer at University Hospitals, pointed out that it isn’t just workload or frustrations with new technologies that are problematic for physicians: “Over the last 20 years, the workload of physicians has decreased – particularly during training – and yet we see higher levels of burnout. I think the conflict between operating in a very revenue-conscious environment and truly caring for our patients is contributing to this exhaustion.”

pool of resources in a time of rising health care costs. Providers seek to provide the best care possible for the entire population they care for.

There is a need to understand value as it is defined by all stakeholders. Countries around the world are implementing value-based approaches to care. Some are using a broader definition of value and tailoring these concepts to best suit their health care needs, while others are focusing more narrowly on costs.² While these efforts are appreciated, a great deal still can be done to improve health outcomes and the patient experience. As Dr. Sundaramoorthy said, “Patient experience is an outcome of good quality care.”

Sweden and the UK are among the earliest adopters of many of the elements of value-based health care.³ With evidence-based treatment guidelines, disease registries and a move toward outcome-dependent reimbursement for specialized care, Sweden is a leader in VBHC adoption.⁴

According to a new report from the Health Care Payment Learning and Action Network, a part of the U.S. Department of Health and Human Services, in 2017, 34% of US health care payments representing ~ 226.3 million Americans and 77% of the covered population flowed through value-based care, up from 23% in 2015.

Source: Healthcare Payment learning and Action Network

Benefits to different health care stakeholders

Patients

- ▶ Reduced costs
- ▶ Improved outcomes

Payors

- ▶ Stronger cost controls
- ▶ Reduced risks

Providers

- ▶ High patient satisfaction rates
- ▶ Better care efficiencies

The UK is moving toward a patient-focused system using innovative payment models such as bundled payments and implementing a Quality and Outcomes Framework, which established pay-for-performance measures for general practitioners.⁵

Some countries are recognizing the opportunities technology offers to change care delivery in ways that matter to both physicians and patients.

The Northern Territory in Australia is undertaking a pilot project to implement a single electronic health record (EHR). The goal is to better coordinate the health care needs of the indigenous population, who experience the highest burden of disease across the Australian population.⁶ It also has many disease registries such as the Australian Orthopedic Association National Joint Replacement Registry.⁷ Joint registries are a good example of sharing data and evidence-based practices to improve quality standards.

In some places, a regional approach to value-based care is being taken, while others are setting strong country-wide policies. Canada has a decentralized approach where each province is redesigning payment systems to move away from fee-for-service.^{8,9} The Canadian health system allows provinces to plan and set reimbursement rates for physicians, which are negotiated by area medical associations.¹⁰ Japan, the global leader in super-aging, is developing a nationwide infrastructure to adopt VBHC. The government has also published a forward-looking vision of health care policies through 2035, focusing on value-based improvements in quality and providing better care at lower costs.¹¹

In contrast, the Netherlands has shown great interest in value-based approaches, but cost control remains the main tool used across the health care system.¹² Germany has a Diagnosis-Related Groups (DRG) system, but it employs fixed-price

fees and is not driven by fee-for-service or outcomes.¹³ It also has registries for major diseases such as cancers, tumors and kidney diseases.¹⁴

The focus on cost alone can have disadvantages. As Dr. Sundaramoorthy explained, attaching too much weight to cutting costs isn't sustainable; at some point it begins to decrease the patient experience and health outcomes. "One of the things that we're trying to do at University Hospitals, especially under the Department of Clinical Transformation, is improve quality by focusing on practicing evidence-based medicine – that will also improve the value we deliver to the patient," she said.

In addition, according to Alice Loveys, MD, Managing Director, Ernst & Young LLP, US practitioners are burdened with many challenges that have accompanied the uptake of health IT. Managing the complexities of patient needs while keeping up with the documentation needed to justify reimbursement has overwhelmed care providers. Longer working hours with more time spent on documentation and administrative tasks than with patients have contributed to US practitioner burnout. Dr. Loveys also said that both physicians and patients feel that the burnout has led to a distressing decrease in human connections and meaningful interactions.

Dr. Loveys stated, "Defining value requires looking at the triad of patients' health outcomes, payors' needs to support the best care possible for

the amount of money available, and providers' needs to provide care without burning out or experiencing moral injury."

Caring together: team-based health care improves value

While familiar with the concept of value-based care, many hospital systems are still adjusting to this new reality. On an operational level, the shift from care being delivered by a siloed, single provider to coordinated, team-based care is key to a value-based care approach.¹⁵ Dr. Sundaramoorthy put it like this:

“

Historically, physicians were operating largely on their own and could only see the outcomes of their individual practice. Taking a collective approach offers the chance to examine the natural variation in the way physicians deliver care.

With these insights, we can eliminate unwarranted care — the kind that can lead to increased costs and/or negatively impact outcomes and identify the most effective methods. As our organization works together to improve quality, cost reduction will naturally follow.”

A team-based approach requires the seamless sharing of health-related data (e.g., electronic medical records, EMRs) among all members of the care team. Ideally, an EMR would connect

The value equation can be defined as:

$$\text{Value} = \frac{\text{Outcome} + \text{Patient experience} + \text{Provider experience}}{\text{Cost}}$$

all doctors to the patient treatment information they need (see the article “Building for now, next and beyond in health care: how new technologies can bridge vision and reality” later in this issue). This type of data sharing has the potential to reduce redundant care processes and improve outcomes.

Incentivizing health outcomes

As payors shift reimbursements away from fee-for-service, providers are seeing a greater share of their revenue stream becoming tied to value-based metrics. In the United States, some have turned to provider-payor relationships to develop payment models and incentives that reward high-quality outcomes and achieve savings, seeking to strike the right balance between cost and quality. Still others have added incentives based on population health metrics; such arrangements aim to reward high performers while reinforcing the

standard of care. At the same time, physicians need to have a view into their performance so that there are no surprises at the end of the year.

Considerable investments in infrastructure, technology and clinical processes

As hospital revenue tilts toward outcomes-based payments and consumers take care into their own hands, health care systems are looking beyond EHRs.¹⁶ According to the Future Health Index (FHI) study by Royal Philips, advanced data collection and analytics play an important role in the new care delivery model and can speed up implementation of value-based health care. The FHI report assesses value-based care on access, satisfaction and efficiency in health care systems of 16 countries, together representing ~50% of the world’s population. The results showed higher adoption of

- ▶ Priority Health in Michigan has a care management fee as part of the pay-for-performance model.
- ▶ Its fee-for-service payout represents ~ 15% of a primary care provider’s total compensation, which is divided into three parts:
 - ▶ Bonuses based on quality performance
 - ▶ Bonuses based on patient experience measures and payment for care management in medical homes
 - ▶ Providers can use the money as they choose, including paying for technology or other infrastructure.
- ▶ Care management payments also mean the practice receives reimbursement for time spent delivering services that would not be billable under fee for service.

Source: Source: ACHP

Iora and Oak Street are examples of venture capital-backed companies adopting patient-first approach and collaborative solutions.

- ▶ Iora Health operates at the level of primary care.
- ▶ Care teams include a doctor, nurse and a health coach who work with each patient, making them active participants in their own well-being. Iora’s health coaches are relationship builders between the patients and their care teams.
- ▶ In most arrangements, the company receives a flat monthly payment for each patient and, if it saves the company money on overall health spending, it takes a percentage of what is saved.

Source: PCPCC

- ▶ Oak Street Health is a network of primary care practices for adults on Medicare.
- ▶ The focus is exclusively on keeping older adults in underserved urban neighborhoods healthier and out of hospitals.
- ▶ Oak Street care teams consist of a physician, nurse practitioner, registered nurse, medical assistant, care manager and clinical informatics specialist.
- ▶ The technology-enabled population health approach has reduced hospital inpatient visits by 40% for over 30,000 patients.

Source: Oak Street Health

value-based care in countries using digital technologies.¹⁷ Improving consumer engagement, physician communication and remote monitoring are all essential. As Dr. Sundaramoorthy said, “Technological innovations that improve communication, both between consumers and physicians and amongst the care team, as well as allow physicians to monitor their patients in their homes, will probably give us the greatest impact on outcomes and experience at this point in time. However, as technology continues to grow and develop, a key component to its role in health care will be to leverage the appropriate dose of it in order to use it as an enabler and not a substitute for the art of medicine.”

However, physicians at smaller practices face technological challenges. Tracking data when a patient moves through various doctors' offices and health systems becomes a difficult task, as smaller practices are not financially equipped to install costly IT infrastructure that can support the Internet of Medical Things.¹⁸

Caring for more than the physical being

As health systems adopt value-based models, the role social determinants of health (SDoH) – which include economic, emotional, educational and environmental factors – play in health outcomes has grown. According to a study published by the National Center for Biotechnology Information, allocation of more resources to social services has substantially improved health outcomes.^{19,20} Increasing evidence of the impact of social determinants on people's health has stirred activity among policymakers,

Good Things Foundation: digital literacy programs improve access to services and outcomes

The UK established a program called “Widening Digital Participation” to support those most likely to experience digital and health inequalities. Between 2013 and 2016:

- ▶ The program reached more than 387,000 people, raising awareness of digital health resources.
- ▶ It trained ~222,000 people to use online health resources.
- ▶ 41% of participants learned to access health information online for the first time.
- ▶ 65% of participants reported feeling more informed about their health.
- ▶ 52% of participants reported feeling less lonely or isolated.
- ▶ Over 12 months, a total of £ 6 million was saved in avoidable visits to doctors and hospitals.

Source: Good Things Foundation

health systems and social entrepreneurs to integrate health and social services and find new ways to finance those efforts. Removing barriers SDoH put in the way of obtaining care or following treatment plans has become a central part of many value-based care strategies.

Summary

There is a pressing need to improve health and quality of life in a way that is sustainable and accessible for all. Below are a few recommendations to keep in mind when thinking about operationalization of value-based care within an organization:

1. **Health is ultimately about the people an organization serves.** The currently fragmented health care system can benefit from value-

based health care only if patients' perspectives are considered. A patient-centric definition of value-based health care is an important stopgap to prevent focusing too narrowly on cost reduction.

2. **Heal the healers.** Incentives are an important tool for changing behavior and should be carefully considered. However, remembering that health caregivers chose their profession to be healers is just as important, if not more so. Removing barriers that may cause moral injury and supporting the kinds of activities that matter to physicians and their patients will improve value.

3. **Better care coordination leads to better outcomes and happier health consumers.** A holistic data strategy and the technologies that feed into it enable visibility across the care continuum. Together they empower payors and providers with the right tools to coordinate patient care and reduce unwarranted variation, waste and error.
4. **Better engagement is an important part of keeping avoidable health care expenses in check.** Bearing the patient perspective in mind and adopting a flexible engagement style are an important part of the broad definition of value-based health care. Patients face illnesses that impact their physical comfort and well-being, and for many, also a complex interplay of emotional and psychological factors. Holistic support and engagement require aiding patients' understanding of health and medical information sufficiently well enough that they can make informed decisions.

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GUEST PERSPECTIVE

Helping people stay healthy at home rather than healing at the hospital



Written by

Peter Pronovost

Chief Clinical Transformation Officer,
University Hospitals (UH)

We sat down with Dr. Peter Pronovost, the Chief Clinical Transformation Officer at University Hospitals (UH) in Cleveland, Ohio, to talk about their unique definition of value. University Hospitals is an integrated network of health service providers that includes hospitals, outpatient clinics and physician offices. Dr. Pronovost, best known for his groundbreaking work on patient safety and high-reliability organizations, is developing solutions for UH to improve health outcomes, while also addressing the overall experience for patients and health care providers.

Defining value for all stakeholders

Our definition of value takes a wide range of stakeholders into account: the patients we treat, the providers and staff who care for them and the facilities in which they are treated, and the payors, which are playing an increasing role in care decisions. We define value with a formula: the quality of care + the patient experience/annual total cost of care. That definition completely reframes how you think about success.

In the old model, success was healing people inside a hospital setting; it was largely reactive care. And under this model, no one felt complete ownership for delivering value. For example, take Helen, a patient who had 35 readmissions for heart failure. This was a win – it filled a hospital bed and generated revenue. But Helen suffered, the payor suffered, and the community around Helen suffered.

What we are doing at UH is trying to help our organization create a new narrative – one in which success is having

people heal and be healthy at home – proactive, rather than reactive, care. In this value model, every one of those readmissions is a defect, an instance where we are failing to provide value.

This narrative galvanizes the organization around a shared purpose: that we will ensure that our employees will be as healthy as they can be, that we provide highest value care to the people who receive care, and that we will deliver value to those who ultimately pay for care.

The narrative for success

There are three sub-stories we are telling ourselves that we believe get us to that healthy-at-home narrative.

The first is to stop believing that harm is inevitable and start believing that it is preventable. People working in health systems have to start believing that harm is preventable and to start approaching patients with that mindset.

The second is to stop believing that value is not my responsibility. Value is

everyone's responsibility. While different parts of a health care system may work brilliantly, the system can still fail because it lacks connections between work streams and a sense of shared responsibility. Going back to our example of Helen, when a patient shows up for readmission, she can get great care in the emergency department or in the hospital, but the readmission happened because there were no connections across the system. Everyone has a role to play in delivering value.

The third is to stop believing that economic incentives alone will solve the problem. The secret of value is love. I mean specifically what psychologist Barbara Fredrickson describes in her book *Love 2.0* – love is micro-moments of connection between two people. This is the foundation, the building block of care.

Co-creating the health experience with health consumers

UH is putting an enormous effort into the consumer journey. Consumers are evolving and are viewing health care like

they do any other consumer good. They want easy access, they want it simple, they want it responsive to their needs, and they want it personalized. Health care has been the furthest thing from that. You walk into many practices and the first sign you see is "Please pay my bill." No other consumer industry would do that.

We are making sure that every encounter with UH – whether person to web, person to app, person to person, or person to the built environment – has a seamless, coordinated feel. We are creating a set of principles that guide every one of these interactions so that when a patient comes to UH, they will feel that they are loved.

This is all part of our "Web of Well-being." The protocols and seamless experience are a way to keep our patients engaged with us and make it easy for them to stay within our network. Not for revenue, but to enable the best outcomes; we can't manage the care and ensure the best value if they go outside of our network. This is

something that fee-for-service models always missed: you can't deliver value because you don't know where your patients are going, what care they have received, and don't have any of that data.

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Article 3





How does private equity affect the health of health care companies?

Strong and growing interest in the health sector by private equity investors shows little sign of easing. In fact, quite the opposite is true. Private equity funding continues to flow into the sector from investors who are attracted by its resilience in the face of potential market volatility and the perceived opportunity for attractive returns.

The year 2018 was a stellar one for health sector private equity, with \$32.9b invested in 647 transactions in the US – an amount double that of 2014. (Figure 1 – see next page) In addition, in 2018 alone, \$10.7b was invested in 279 deals outside the US. Over the five-year period to 2018, in the US health care expanded its share of total private equity deals from 8.3% to 12.2%. Moreover, one in seven private equity firms made at least one health care investment in 2018.

In past years, investor attention has focused on some of the most persistent problems in the health sector. The wasteful, siloed and fragmented nature of delivery systems lends itself to traditional private equity skills of enhancing value through eliminating inefficiencies, improving operating models and consolidating markets. And future opportunity will likely be strong. Health care is poised to continue not only as a significant economic force, but as one subject to ongoing disruption. Providers and payors will continue to evolve their business models to respond to an aging population, to the increasing burden of chronic and lifestyle-driven conditions, and to policymakers' efforts both to expand coverage and to contain cost growth.

As more investors enter the market and competition for deal opportunities

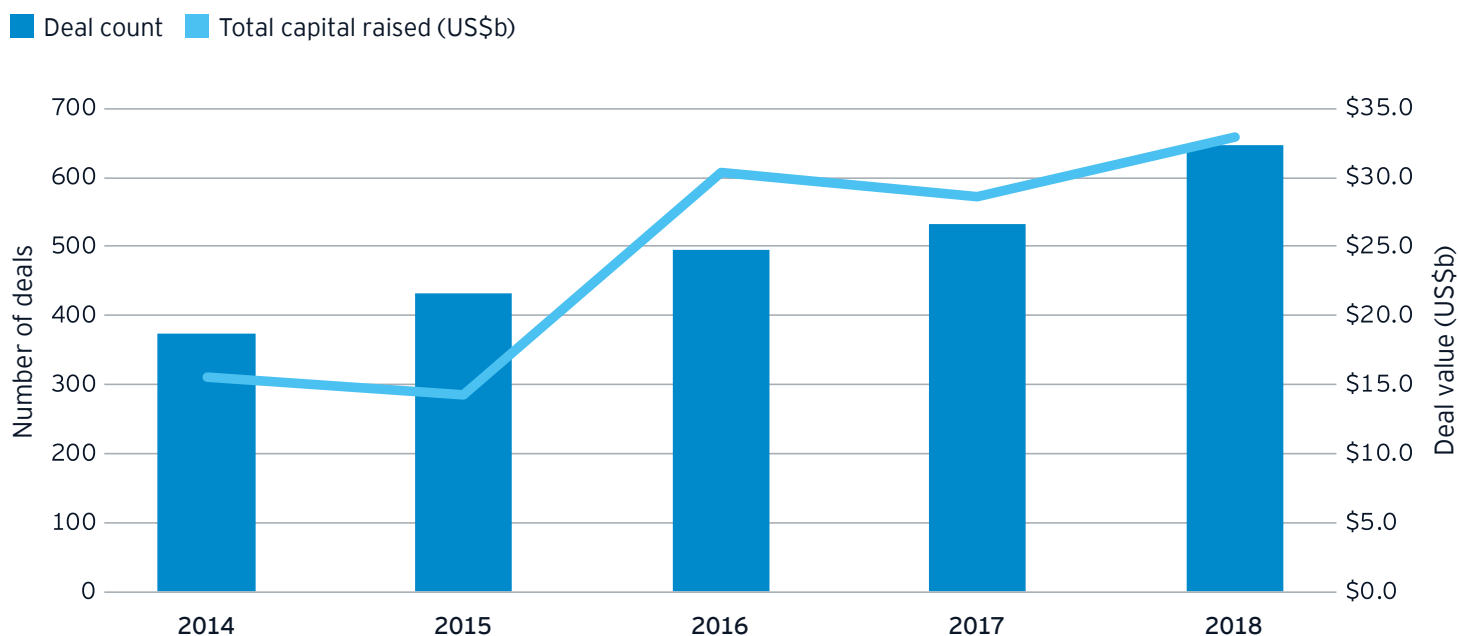
intensifies, investors feel greater pressure to move quickly to secure limited opportunities. Moving quickly involves being nimble in reaching a shared understanding of how private equity will affect the target business. Current market conditions mean that private health care companies can be selective about collaborating; thus, it is important that private equity firms narrow their focus on objectives and values in common with their target companies.

Flush with capital to invest (the dry powder or callable capital reserve in the US was \$427b in March 2018),¹ many funds are pursuing more creative approaches than previously, such as strategic partnering or seed funding investment. Health information technologies, physician practice management and outpatient specialty areas, including urgent care and

home health care, have all garnered investor attention. And, an uptick of interest is evident in assets that cater to changing consumer preferences or help providers migrate toward digital health technologies to deliver anywhere, anytime care in lower-cost settings. (Figure 2)

However, private equity and health care can make for an uncomfortable pairing. Concerns have been expressed about possible implications of private equity investments, including the potential for conflicts of interest. While evidence suggests that companies taking on these investments can achieve strong financial and competitive performance,² private equity is often viewed as a force that will, at best, have limited impact on clinician behaviors, clinical outcomes and patient satisfaction. This is particularly true in outpatient health

Figure 1: Private equity investment in US health care services and technology (2014-18)



Source: EY-Parthenon analysis of Pitchbook data, calendar year 2014-18. Showing Health care Technology Systems, and Health care Services

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85% of health organizations looking for value-added assets in the coming months indicate they will face stiff competition, with the majority coming from private equity players who have record levels of dry powder seeking to diversify their portfolios in a quest for higher returns.

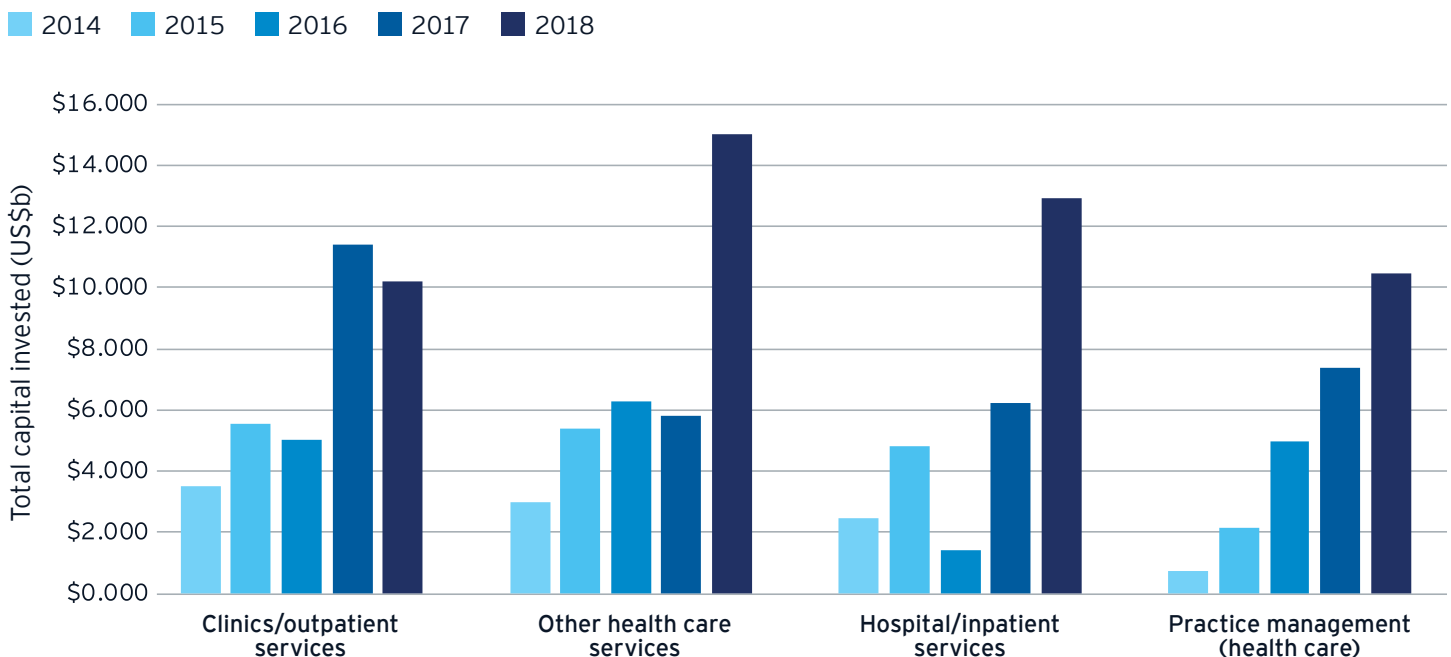
Andres Saenz

EY Global Private Equity Leader

care service firms, a key focus of private equity activity, where both founders and physicians can become concerned that private equity can negatively affect physicians' work lives and patient care.

To gauge the market's perceptions, we turned to a group of founders and executives who have lived through a private equity investment in their business.

Figure 2: Private equity investment in US health care services and technology (2014-18)



Source: EY-Parthenon analysis of Pitchbook data; showing by category the top four investment categories within Health care Technology Systems and Health care Services

Can private equity effectively balance its financial objectives with a respect for clinical quality and patient satisfaction?

In our rapidly growing commercial diligence and strategy development work with private equity firms across the US, we frequently encounter questions around how best to align potentially divergent interests of health care companies and private equity investors, affecting both the investor's initial approach to a private company and the ultimate success of an investment.

Private equity influences and uplifts performance

To address this issue, we spoke with and surveyed more than 80 health care company founders and executives with direct experience of private equity investment in their physician practice management companies. The good news: 90% of those we surveyed said private equity involvement with their company has been a positive experience overall, with over 80% of those surveyed highly likely to consider private equity investments in the future.

EY research suggests that, at least within this subset of the industry, private equity firms add value beyond providing capital and improving financial performance. Not only is private equity perceived to have a beneficial overall impact on health care businesses, it is also considered to positively influence the focus on quality and clinical services. (Figure 3) While the pursuit of attractive returns on capital will always be the primary goal of private equity investors, the infusion of private equity capital can offer significant benefits to health care companies that go beyond financial results. This is an encouraging sign for industry observers who fear disharmony between the forces of capital and care. It should also be reassuring to business owners who are considering a private equity transaction but wish to see continued improvements in clinical quality, regulatory compliance and patient experience.

Many of the executives we interviewed believe that, in addition to focusing on short-term financial performance, private equity investors often seek to deliver major long-term improvements. One executive notes, "Private equity allows us the ability to leverage capital, and their contacts in the health care

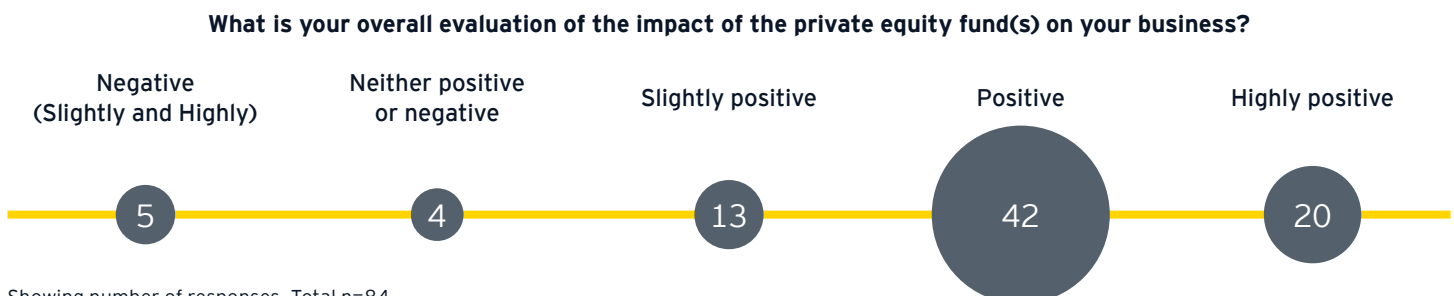
sector are indispensable." Another explains, "Private equity gives ... [us] access to new markets and strategic thinking on top of providing funds."

Upping the ante to drive leading practice

In addition to a focus on financial performance, we also heard that private equity investment in health care firms often underpins improvements in key areas such as tracking patient satisfaction, securing key talent and enhancing compliance.

As well as providing greater access to capital, private equity investors are credited with introducing leading practices from companies in their investment portfolios, especially with respect to improved management, clinical metrics and compliance systems. Respondents noted investments in critical performance dimensions such as tracking of clinical outcomes, patient satisfaction and compliance. (Figure 4) As a CFO of a large dermatology group shares, "Private equity started a compliance committee that needs to report everything from chart audits to behaviors. So, they've played, I would say, a big role in making sure that compliance processes are working in the company."

Figure 3: Health executives have a positive perspective of the impact of private equity investment on their business



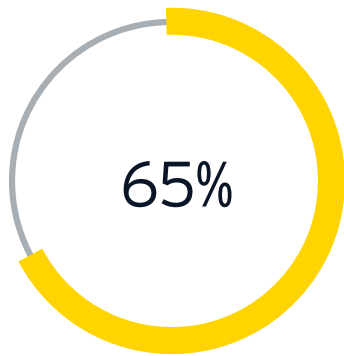
Showing number of responses. Total n=84

Source: EY-Parthenon Impact of Private Equity Investment in Health Care Survey, 2018

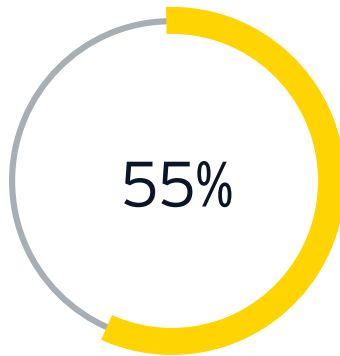
Figure 4: Private equity investors fuel investment in clinical metrics and compliance systems

"Please assess the impact of the PE investor on the below areas"

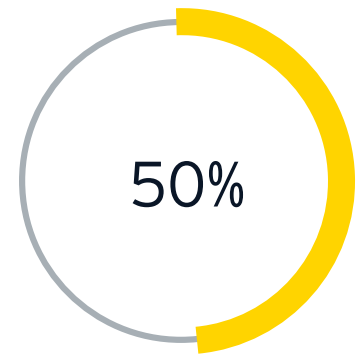
■ Increased investment



Improving regulatory compliance
(n=40)



Tracking of patient experience and satisfaction
(n=49)



Tracking of clinical outcomes
(n=40)

Often overlooked, too, is the discipline private equity can instill in smaller companies that lack mature infrastructure and the depth of skills essential for managing growth. As a founder of a health clinic told us, "We were just flying by the seat of our pants. The private equity investor provided a structured organization, metrics and accountability. And so [now], the company runs off numbers as opposed to just a very intuitive sort of management style that existed before."

The importance of perspective

Private equity investment may be attractive to many as the increasingly consolidated health market becomes more competitive. Some apprehension about private equity persists, however, particularly around governance. One home care company CEO sums it up well: "I think some in private equity are spread pretty thin, and as such don't

grasp the nuances of clinical care. In health care, sometimes a subtle issue can lead to underperformance, but private equity folks [make] changes before it can be properly addressed." It's a sentiment that's certainly understandable. The sudden transfer of control from a founder (possibly a physician) to new ownership, with an unfamiliar business language, and performance pressures, can destabilize. Physician alignment is a critical element of investment to confirm the right mix of specialties and that equity or compensatory arrangements are in place to retain critical talent.

Physicians are frequently concerned about interference with their medical autonomy and loss of professional control, job security, downplaying of patient focus and fears that financial metrics will be prioritized over clinical outcomes. Despite this, 60% of our respondents judged clinician reactions as positive. Why? It may be because

of the proceeds that physician-owners realize from a private equity transaction, but also because the investors' support of the company's future growth can benefit practicing physicians. This may include income growth from increased operating scale and better leverage with health insurers, greater access to new technologies or the prestige of being associated with a successful organization.

For business owners, one key to a successful investor partnership is educating investors on the constraints within which the health industry operates. For example, the regulatory environment can lead to uncomfortable discussions about commercial issues (such as improving efficiency or growing revenue) if investors are not familiar with navigating Stark laws, Certificate of Need requirements, or fraud and abuse statutes that may have been fundamental to the company's history. [See sidebar]

SIDEBAR

Regulatory and accountability measures underpin the governance and operating responsibilities of health practitioners, systems, service providers and manufacturers, among others. The quality of clinical procedures, the protection of personal health information, and the safety and efficacy of drugs and devices are but some of the obligations articulated by regulations at the federal and state levels. Another broad category of regulations deals with the potential for fraud and abuse in connection with payment systems, including insurance companies, Medicare and Medicaid. Some of the principal regulations to be aware of include:

- ▶ **HIPAA privacy rules:** trust, privacy, data protection laws and restrictions on data-sharing across digital platforms
- ▶ **Stark law:** addresses physicians' self-referral for certain services if the physician or family member has a financial relationship with that provider
- ▶ **Medical necessity:** mostly an administrative practice rather than statutory, this concept establishes conditions for third-party payments
- ▶ **Antikickback Statute:** makes it illegal for providers (including physicians) to knowingly and willfully accept bribes or other forms of remuneration in return for generating Medicare, Medicaid or other federal health care program business
- ▶ **False Claims Act:** renders it illegal to submit fraudulent claims to Medicare or Medicaid

Success in private equity transactions depends upon both sides' willingness to understand the complexities of each other's business

The pace of deals in health care has resulted in a competitive sprint to gain the upper hand in securing transactions. Entrepreneurs in search of funds are often in the unexpected position of being able to be selective about their investment partners. Private equity funds, on the other hand, risk moving too fast. Creating and sustaining strong positive personal relationships will be critical to winning new opportunities and to the success of future deals.

What may not be clear at the beginning of a private equity deal is that a prime concern should be to figure out how to make the relationship work, by confronting and resolving any potential conflicts between investors' and business owner's expectations. If handled well, it seems clear that partnerships between private equity and health care companies can produce highly successful outcomes – for investors and management but also for clinicians and, most importantly, patients.

Looking ahead

Executives and business owners and private equity investors contemplating entering into a private equity transaction will need to weigh not only the need for a ready source of capital, but to consider the following:

What will unlock value for both parties?

Value creation brings the promise of transforming the company and creating long-term viability by making

the business better. Pathways to value differ – whether through digital transformation, reconfiguration of assets or repositioning to enter new markets. The litmus test is whether a potential investor partner will bring the right entrepreneurial and management talent to complement the owners' domain expertise to reinvigorate the company to achieve its full potential. Alignment includes:

- ▶ Agreeing on validated business fundamentals that will release value
- ▶ Sustaining relationships and governance, including an openness to partner on a journey of constant reinvention to remain relevant to the future
- ▶ Understanding that in health care, value creation will likely have a long-term investment horizon. Market segments and new technologies will grow at differing rates; therefore, where should bets be placed that capture optimal alignment among market, product and timing?

Is risk a two-way street?

Absolutely, both sides need to do due diligence – commercial, operational, IT, human capital and cyber. In addition to the traditional financial, operational and tax diligence, this should cover environmental, social and governance diligence. Bringing partners along is vital, including:

- ▶ Aligning expectations and requirements for risk and reward
- ▶ Paying attention to the often-invisible cultural factors and organizational alignment that are vital for establishing a firm foundation for any business relationship



- ▶ Managing business continuity and risk and accurately assessing the complexity of scaling a business across multiple geographic areas or market segments

Does familiarity matter?

The complexity of investing in health care (e.g., the science, the regulatory factors or the intricacy of payment mechanisms) gives an edge to private equity firms that specialize in the sector. Evidence from EY research suggests that people who know the health

industry best appear to navigate it more successfully. Mastering the health industry includes:

- ▶ Acquiring deep industry knowledge and a high degree of comfort operating in a highly regulated environment
- ▶ Understanding that health is a people business and, as achieving outcomes for the patient motivates practitioners within the industry, this should also be a key concern for investors
- ▶ Challenging and validating working

assumptions about market trends, target company performance, and new and expanded opportunities for both the company and its owners

Managing clinical processes can be complex, and health institutions can move slowly. Appreciating the constraints of the sector and a willingness to understand the complexities of each other's businesses can lead to an enduring relationship with private equity that positively affects the success of health care companies.

About the research

Published in 2018, the EY-Parthenon Impact of Private Equity Investment in Health Care Survey³ is based on a study conducted between July and November 2017 using a mixed-methods approach that consisted of an online survey of 84 executives (fielded in July 2017) who were either currently working or had recently worked at a private equity-backed health care company in the United States. More than 80% of respondents were C-suite executives, including CEOs, CMOs, CFOs and COOs, and a similar percentage had experienced two or more rounds of private equity investment.

The second phase of the research consisted of a follow-up survey of 49 respondents (in November 2017) providing further detail on questions of clinical operations. Finally, in-depth personal interviews were also conducted with 12 current and former health care executives.

Endnotes

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GUEST PERSPECTIVE

How partnering with private equity changed our mindset around where the company could go



A conversation with

Craig Brown, PhD

Co-founder, Center for Discovery (now part of Discovery Behavioral Health)

DISCOVERY
Behavioral Health

Beginning in 1997 as a single treatment center in California, the privately held and private equity-backed Center for Discovery now operates 77 programs in 11 states providing residential and outpatient behavioral health treatments for addiction and eating disorders. Co-founder Craig Brown spoke with EY-Parthenon about his early private equity experiences.

The first private equity investment in the company was made in 2011 by a firm with deep health industry knowledge. This involved a steep learning curve for the Center for Discovery, to appreciate investor interest in driving efficiencies and expanding opportunities for growth. The challenge for the equity investor was to master the clinical, payor and regulatory nuances of a specialized treatment environment. Initially, there was a clear gap between investor expectations and owner perspective around the degree of aggressiveness in company growth.

Looking back, Brown now sees that the private equity investor provided invaluable leverage to grow revenue and improve profitability. Involvement of an experienced partner was instrumental in changing the company's previously modest growth ambitions. For Brown, the strong relationship built with the investors was critical to improving the operational performance of the business, including capital allocation and deployment, cash management and in recruiting, sales and marketing. Moreover, Brown gives high marks to the private equity firm's involvement in enhancing overall company governance and risk management and in driving improved clinical outcomes.

As a co-founder of the company, Brown considers it all-important that investors work closely with company founders while giving them the space they need to influence outcomes. He notes, "When I look around at competitors, I think the big risk is when the founders leave, and the company is in the hands of people who weren't there at its origin. I think it's important to hold onto the original mission – it can be a challenge."

Weighing the demands of taking on an equity investor, Brown highlights the potential for tension between the clinical and corporate forces around the table. Achieving the fine balance between maturing in a business sense and bringing the clinical team along, while avoiding the perception of being a "corporately driven company," is one of the most important leadership challenges.



Article 4





Building for now, next and beyond in health care: how new technologies can bridge vision and reality

As longer lifespans have become more common and chronic diseases more prevalent, health care has necessarily become more complex. As a result, care has moved away from the home and community to specialized facilities capable of handling diagnosis and treatment. While that focus has contributed to better health outcomes and longevity, we have ended up with health systems devoted to sick care – something that is unsustainable.

Health incumbents have long acknowledged that clinical care is only a small contributor to health and well-being. The contrast between this point of view and health systems that are primarily focused on disease presents many problems, two of which we raise here. The first is that a good deal of care that doesn't need high-tech, high-touch facilities still occurs in those settings. This is unnecessary, adds layers of unnecessary costs into the system, and can present additional risks for patients. The second is that our investments in tools for diagnosis and treatment far outweigh spending on prevention: the World Health Organization, for instance, estimates that only 3% of health budgets in Europe are spent on public health and prevention.¹

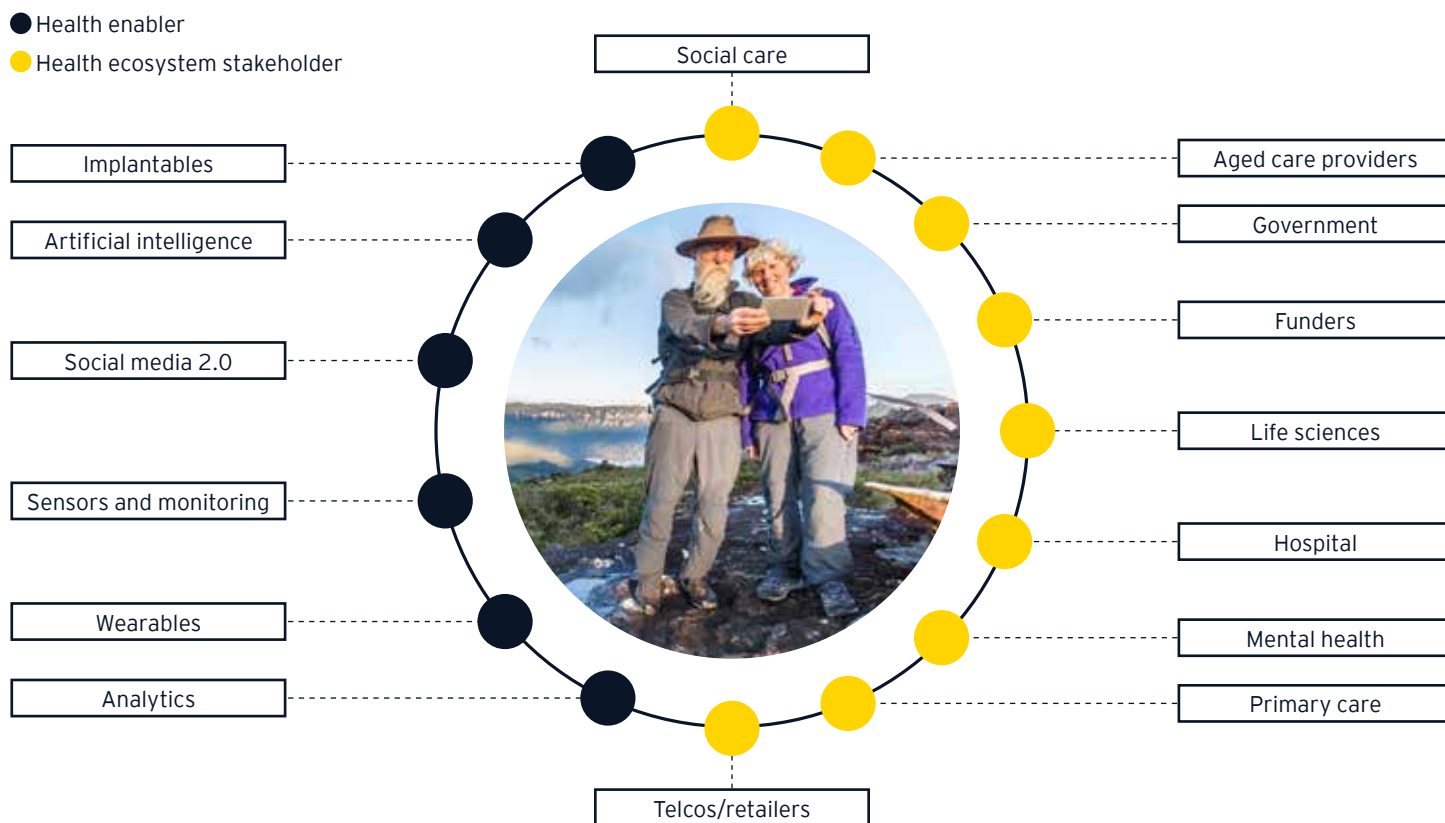
The health sector, responding to a rising consumerism influenced by experiences people are having with goods and services from other industries, has reimagined what it wants to be: consumer-centric, participatory, outcomes-based and cost-efficient. The tools needed to become truly digitally enabled are here and are ready to launch us into the NextWave of health. Focus is shifting to “doing,” to operationalizing the vision of keeping people healthier for longer, and to “put more life in our years.”² We can achieve the goal of healthy longevity by using the available tools and capabilities to connect the many social determinants – and their interactions with one another and the clinical system – to clinical care.³

The technologies and new operating models that will get us to a connected, wellness-oriented, anytime, anywhere health ecosystem are available today. They offer consumers a better, personalized experience – the cornerstone of lifelong engagement with health. For providers, a dynamic and panoramic view of their patients and their environment, rather than the episodic snapshots obtained when sick care is sought. For payors, the chance to better understand the drivers of health and disease – and maximize the use of the scarce resources they manage; or to support health consumers and care providers in new ways. For new health businesses, the chance to bring their products and services to a new sector

(see the UPS inset to learn about the affinities between logistics and health).

An essential feature of a connected health ecosystem is missing, though: an information technology (IT) infrastructure that connects all these stakeholders and supports the easy, permission-based flow of information. This infrastructure, together with open source data standards (that go beyond application programming interfaces) and clinical data models are essential precursors to participatory health (see Figure 1). This paper discusses the need for an open IT infrastructure and its role as a central support of a variety of health technologies.

Figure 1: The components of a participatory health ecosystem



GUEST PERSPECTIVE

The role of UPS in health care transformation

**Daniel Gagnon**

Vice President of Global Healthcare & Life Science Strategy, UPS

**EY: How did UPS become interested in the health sector?**

Dan: We began thinking about health care logistics more than 20 years ago. Our original investment started back in 2000 with the acquisition of a company called Livingston. This gave us some experience with health care contract logistics. We saw lots of supply chain inefficiency and thus a tremendous opportunity to bring what we knew from supply chain into the health care space. Over time we also saw that health care, like the UPS' logistics business, had high standards for compliance. The industry's conservative approach to managing risk aligned well to UPS's culture back then.

EY: Why is logistics important in health care?

Dan: Health care is a bit behind other industries when it comes to supply chain and logistics. Let me use an example from the fast-moving world of consumer goods. Because retailers typically make pennies on a transaction, their operations need to be optimized: they have to have the right inventory, at the right location at the right time to make sure they aren't missing sales on the products that generate revenue. This

means a holistic set of policies that cover everything from site location to inventory transportation, and that work together to maximize profit.

There are lots of opportunities within health care to use similar logistic principles to make the best use of the scarce resources health systems have at their disposal. The logistics of complex operations is a core competency for UPS. Within hospital systems, we see an opportunity to optimize inbound freight, manage inventory of durable and disposable goods, and to track and measure the utilization of assets.

EY: The EY organization has a point of view that health care will move closer to where consumers are and be demand-driven. What role can UPS play in an ecosystem where care is more decentralized, and delivered anytime, anywhere?

Dan: Consumerism within health care is certainly growing, and it's possible to see some forms of care shifting to the home. There are many possibilities for UPS, but it's worth mentioning the final mile challenge and the consumer experience.

The pattern of disease has changed over time: chronic illnesses have become

more prevalent and are occurring earlier in life. You can't expect a person to come into an urban hospital for every instance of care, nor is that cost-efficient. So the treatment of chronic diseases fits very well with home health as part of a continuum of care. Some of that treatment will require the movement of durable and/or disposable medical goods. The core UPS business has always been small package delivery – we make the connection across that final mile. As care begins to shift to home, UPS is a perfect link between the consumer and those looking to provide goods and services.

In terms of experience, historically we invested more in tools for our shippers and bringing them capabilities that they wanted. But that has changed. Since our wholesale and retail customers are now competing on customer experience, we have had to focus on the consignee's (the package receiver) experience as well. Over the last few years, more of our innovation has been aimed at the consignee and the kinds of services they value. For health care consumers, that includes tools that provide complete transparency from the moment they are considering a purchase all the way through delivery.

Trusting the system

The world we live in is increasingly shaped by technology. We have nearly universal mobile access to information and a growing ability to monitor ourselves and the physical environment with inexpensive and unobtrusive sensors. The data produced is evaluated by increasingly sophisticated algorithms, yielding powerful insights that can influence our choices and behaviors in ways that were previously impossible. We have a chance to understand ourselves, and our own health journey, like never before.

Care delivery is changing, moving closer to where consumers are; health services will increasingly happen outside of traditional health settings. In the United States, there has been a boom in the retailization of health: the market value is expected to go from roughly US\$1.7b in 2017 to US\$7.5b by 2025.⁴ At the same time, a variety of concierge-style medical models are emerging. Some,

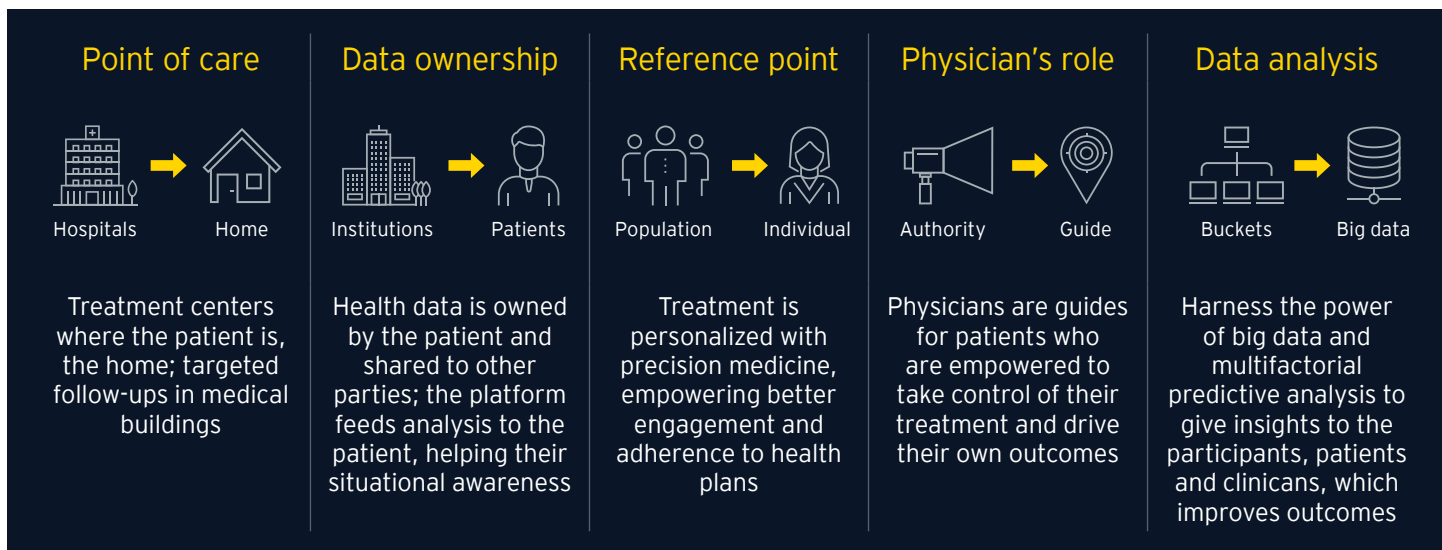
like Oscar, are heavily tech-enabled and others, like Iora Health, focus on care teams for the most complex care needs.

As care delivery changes, so will the role of the physician. Physicians will manage health with a host of new tools, goods and services to manage chronic diseases and, eventually, proactively manage lifestyle and wellness. Mobile connectivity, inexpensive cloud storage, wearable sensors, durable environmental sensors and portable medical devices are making new sources of data available. And the combination of 5G connectivity and edge computing are a part of the growing infrastructure needed to quickly and securely share consumer-generated data. This data, when combined with clinical information, offers the promise of a more holistic view of health and disease, and puts individuals at the center of their wellness journey (see the inset article on how **Cambia Health is reimagining the health consumer experience**).

This new model is one in which infrastructure is designed to make the permissioned combining and sharing of data easy and is accessed by stakeholders with business models that use the infrastructure to fully enable the outcomes. The vision for a digitally enabled health ecosystem is one in which consumers can securely share their data to gain useful and actionable insights that improve their lives. That means an end to proprietary generation and storage of data. Under the new model, it is the consumer experience and data-derived insights that matter.

In short, data needs to exist separately from the applications that generate and operate on it.

Figure 2: The traditional model of health is changing



GUEST PERSPECTIVE

Combining technology and the human touch to empower health care consumers



Mark Ganz
CEO, Cambia
Health Solutions



Laurent Rotival
CIO, Cambia
Health Solutions



Cambia is making the possible reality, today

More than 100 years ago, loggers in the Pacific Northwest banded together to create something new: an organization that would provide for their compatriots if they were injured or became ill. There was no name for what they created; it was simply called a Medical Board. Over the next century, it would become Cambia Health Solutions, a nonprofit health solutions company with a core set of values similar to those on which they were founded: empathy, trust, innovation and hope.

“Our values provide us a road map for innovation,” shared Mark Ganz. “We are focused on innovating for the future to address the fundamental issues facing health care today. We are a catalyst for change, making health care more person-centric and economically sustainable.”

Legacy systems mean legacy services

Many health care organizations are developing solutions grounded in their legacy systems. For health plans, that often means having to continually customize applications for claims

adjudication and billing systems. For physicians and other health care providers, that often means patient-focused solutions are limited by electronic health record systems used to manage patient registration, clinical and billing workflows. “These legacy systems will always constrain the ability to truly personalize care for people,” said Laurent Rotival. “We recognized that innovation requires dissociating from those monolithic legacy systems and building something entirely new, inspired by the mobile revolution in other industries. New architecture, new operational processes and a new business model. All built around creating a dynamic, human-centered and a personalized experience for the people we serve.”

Building for trust

Rather than accept the status quo, Cambia set out to build a new platform powered by leading-edge technology and people to enable a seamless health care experience for individuals and their families. According to Ganz, “It’s not simply about the technology. It’s about creating a new framework for care.”

Cambia clearly recognizes a broader definition of “platform” as a networked

ecosystem with a corresponding infrastructure that allows stakeholders to connect and share data and insights quickly. “Our ‘everything in one place’ health and well-being platform is backed by our 100 years of experience in the health sector. While our technology is cutting-edge, it is also built around the principles of privacy, security and reinforcing consumer trust,” Rotival explained. “Unlike many technology organizations, our business model isn’t built around collecting and selling data. Our platform – built to combine technology and human touch – enables a stronger person-expert relationship, and supports the continuity of care, anytime, anywhere, any way a person needs it.”

As care moves to where the consumer is, it becomes more focused on proactive wellness, and grows beyond its traditional definitions, the number of data sources will grow. This is an all-important part of understanding the impact of social determinants on health and clinical outcomes. Connecting all data points to each other, including clinical information, is necessary to truly unlock its value. “We aren’t designing around the technology, we are building for the experience people will have,” said Ganz.

GUEST PERSPECTIVE

Combining technology and the human touch to empower health care consumers, cont.

Your key to a seamless, n=1 health journey

Consumer expectations of health care are changing; they want an experience that reflects other areas of their lives. The desire for a health care system that's personalized, relevant and easy is opening doors to radically different approaches to care. Health and well-being are moving to wherever the consumer is, and include more features than just the physical.

"We don't think about individuals as just a health plan member, patient or employee," said Rotival. "We are thinking beyond an individual's contract relationship, or a person's status as a patient; a person is more than just the episodes of care they receive. We seek out their needs through the information available, aggregate the data and present actionable insights generated in a way that is compelling and helpful to the individual."

"One of the big things missing from the health care industry is curiosity," according to Ganz. "People want care from someone who is curious and

empathetic to their individual journey. Care that is designed specifically for them." Many approaches across the health care ecosystem are a recipe for maintaining the status quo, perpetuating the economic models we have today. "The focus should be on the individual, n=1, from birth to a graceful completion of life. We should be delivering care experiences tailored to the needs of the individual and their family," Ganz said. The goal is twofold: to keep people engaged throughout their lives and help them be their healthiest selves.

All self-disruptors must address duality of growth – the challenge of maintaining the business of today while building the business of tomorrow. Ganz shared three tenets that helped him manage the challenges Cambia faced:

1. Build around a shared purpose.

"I made a conscious decision not to create a separate company to drive innovation," said Ganz. "While separate companies might have meant faster results, the risk was that we wouldn't see ourselves in the new company. Just as the body

repels foreign elements by creating antibodies, we might have choked off the very thing we were trying to grow."

2. Use the power of the legacy business to grow.

Ganz described the critical importance of a shared future for the entire organization as he described Cambia's innovation success. "We strove to take a balanced approach to growth, funding the future while spending on the legacy business. This required discipline for placing bets in the most important areas. I am proud of our team at Cambia being willing to take chances, changing the culture to one that can drive innovation. We are harnessing the power of the legacy business to build the future."

3. Patience and constancy of vision.

"Set a clear and constant vision for the future," Ganz summarized. "If you really want to make change, it requires gentle pressure applied over time. This is beyond a company or organization. This is how you change a culture and an industry."

Dealing with the health infrastructure of today

By the end of 2017, an estimated 85% of office-based physicians in the US were using electronic health records (EHRs).⁵ The Health Information Technology for Economic and Clinical Health (HITECH) Act (part of the American Reinvestment and Recovery Act of 2009) specifically mentioned Meaningful Use⁶ – with interoperable electronic health records as the medium through which it would be achieved. Health systems, concerned with delivering the highest quality of care possible, initially tried to buy separate, best-of-breed applications for labs, imaging, core electronic medical records (EMRs), etc. When faced with massive interoperability problems, most provider systems shifted toward monolithic, proprietary systems whose modules shared a database, allowing for seamless intra-system communication

The result: EHR systems that were born out of a rush to digitize are expensive and have a poor ROI. Vendors are incentivized to keep the data proprietary and not easily integrated with other systems (or the wider connected health ecosystem).

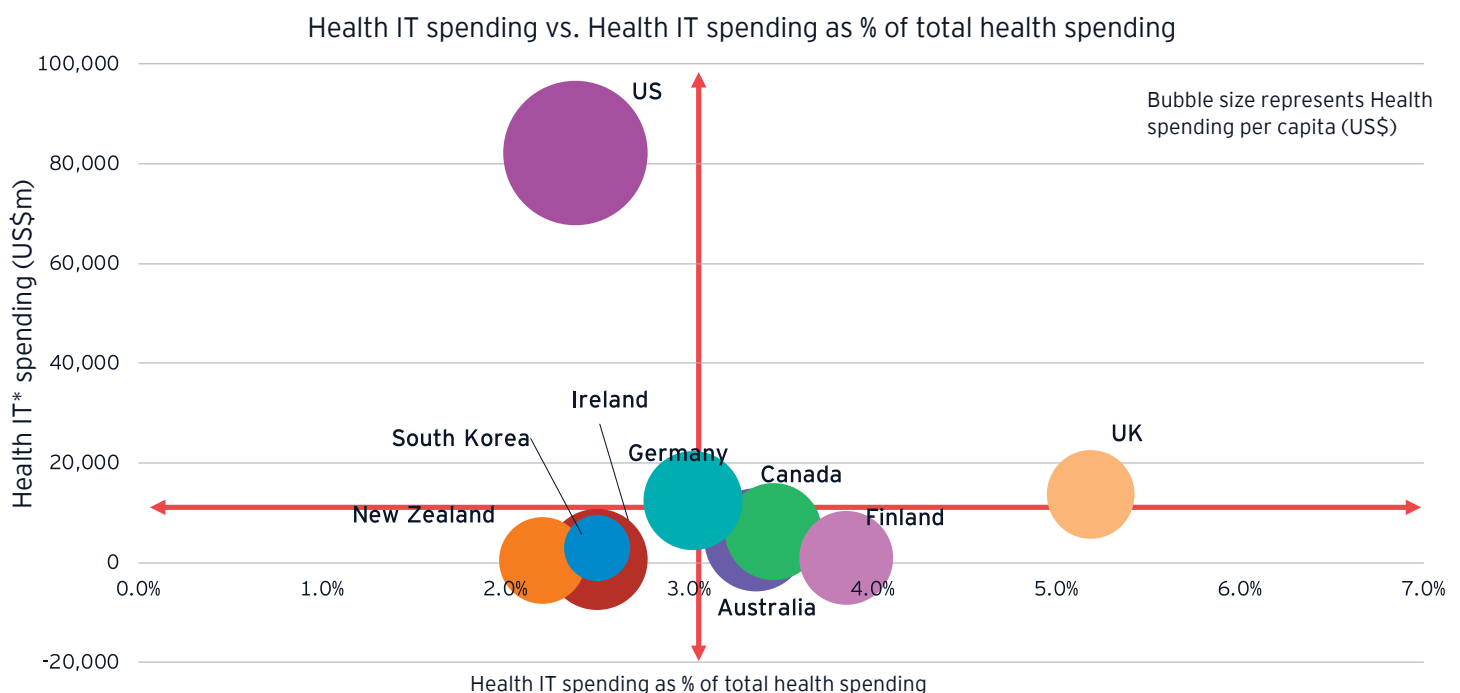
Meaningful use has five objectives:

- ▶ Improve quality, safety and efficiency, and reduce health disparities
- ▶ Increase patient engagement
- ▶ Improve care coordination
- ▶ Expand population and public health
- ▶ Ensure adequate privacy and security protection for personal health information

The investment required to install and maintain large and complex EHR solutions is not sustainable for most health care organizations, particularly those in public health systems (see Figure 3 for a global comparison of health IT spending). At present, it is hard to pinpoint the value beyond “digitization” of records. Data is locked into proprietary platforms, data structures and clinical models making it difficult to flexibly develop additional functionality and integrate with other data sources. In addition, the workflows are not easily adaptable to different health care systems with different regulatory environments, clinical delineation of duties and documentation requirements.

In most current approaches to implementing clinical data storage systems, individual elements are locked down in proprietary systems

Figure 3: We can't spend our way to a connected health ecosystem⁷



* Health IT spending includes health care providers, payors, and life sciences and health care products.

that require complex application programming interfaces to interact with the data. Companies have built entire business models on collecting and “owning” the data. An element collected in one system may be duplicative of data collected in another, or the very data element may have been updated in one but not another. Therefore, any analysis of the data requires complex matching and normalization. In an open data architecture model, data elements are already up to date and “normalized” for systems to ingest and present to end users.

Lifelong health requires more than just clinical data: most of what determines how long we live and how healthy we are happens outside of the health care system. Every day, 2.5 quintillion bytes of data are generated outside of the health system.⁸ Though not all

that data is directly relevant to health, an enormous amount of the data that consumers, payors, providers and pharma most need is not part of the health system and cannot readily be integrated into most existing health IT systems. In fact, almost 90% of the factors that influence health exist outside of clinical practice (see the 2018 *New Horizons* article “Data fusion: bringing the health consumer back into focus” for an in-depth discussion).

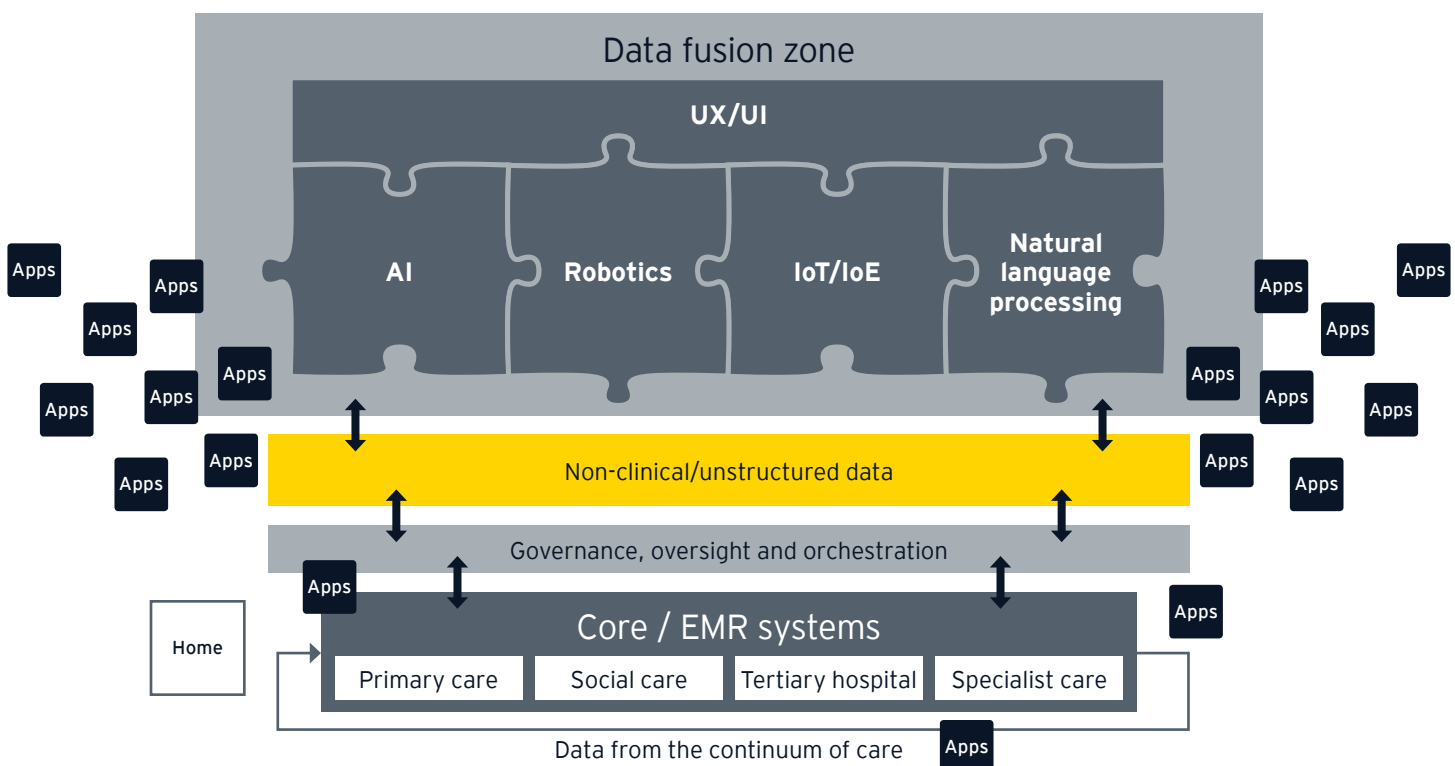
Building for today and tomorrow: platforms as the new health data systems

The vision of anytime, anywhere care requires frictionless, but permission-guided, data sharing among stakeholders (whether they are consumers, who are increasingly

recognized as owners of the data, or businesses that provide the tools that capture the data). Data sharing, in turn, necessitates a health IT platform that has a few key features: it must allow for the storage and linkage of structured and unstructured data; the data has to exist independently of the applications that generate it; and the data must be accessible by a variety of interfaces.

Building capabilities in this type of health platform will not require abandoning the core systems health care stakeholders currently use (e.g., EHRs, laboratory and radiological information systems, or other IT infrastructure). These systems still collect and reflect core essential elements. Instead, a more flexible, dynamic infrastructure is built around it, communicating through standard application programming interfaces

Figure 4: Shrink the role of the EHR and invest in infrastructure that separates data from interface



like Fast Healthcare Interoperability Resources (FHIR). In the near term, platform-based systems and legacy EHRs can coexist by maintaining basic functionality in legacy systems while building and innovating in a platform-based environment.

Users can access the vast universe of data and apply smart algorithms that combine data in novel ways to generate insights from the platform; in fact, without clean, standardized, shared data, machine learning algorithms cannot be run without a degree of clinical risk. This democratization of data enables the data fusion required to fully promote wellness, manage disease, and discover heretofore unknown drivers of health and disease.

This model of a health ecosystem necessitates a shift in the way stakeholders approach data and generate revenue. The value for health companies will not be in owning data but in the algorithms and the insights they generate that shape health outcomes in ways that matter to consumers, payors and other health stakeholders. Shared data creates larger data streams and more insights and enables the efficiency of network effects as additional users flock to initially promising services, providing even more data that can be used to improve and personalize offerings.

Health organizations will have to be smart buyers, basing purchasing decisions on who can provide the best and most clinically relevant insights or partnering to generate their own. This also means establishing a digital strategy that can make use of the data, and an operational model that can rapidly respond to the insights generated.



Making digital work, for people

A connected health ecosystem is an essential precursor to delivering better lifelong health. The technologies being implemented today are needed to deliver a true wellness focus. But they require data sets of sufficient size, quality and data variety to deliver accurate or optimal results.⁹ To be effective, these tools require platforms that integrate the structured and unstructured data generated by consumers, providers, payors and new entrants to health.

Many of these “new” technologies are already a part of care delivery. Automation (like RPA) and algorithms that can parse and process natural language are already being used to fill in health records. Medical imaging is being transformed by machine learning algorithms. Problem-free images are identified and triaged, offering radiologists the chance to focus on the trickiest cases. Inevitably, they will become “smart” enough to augment the physician decision-making process.

AI will increasingly be used for diagnosis and treatment. For example, IDx’s proprietary algorithm IDx-DR

is a new tool for diagnosing diabetic retinopathy. Its product is the 13th AI-based algorithm to win FDA approval since Arterys’ MRI cardiac imaging interpretation in January 2017. But IDx-DR differs from the previously approved algorithms in that it is the first ever to make screening decisions without the need for any additional human interpretation. Supporting the higher level of evidence required, this is also the first algorithm to be approved based on a prospective clinical trial.

A focus on consumer and physician experience, using digital tools operating by a data platform (see the article – in this issue – “How redefining value in health care is leading to new ways of delivering care” for more) is essential. Doing so can encourage consumers to stay engaged with their health and reduce the load of mundane work providers must do, while increasing their job satisfaction. Customizing interfaces, health nudges and treatment plans all require a better understanding of an individual (and his or her environment) than the health sector currently has.

Blockchain and cloud solutions offer the kind of safeguards and data security that build stakeholders’ trust while enabling fluid, permission-backed data

sharing. They allow for the secure (and verifiable) storage and transmission of data within and across an enterprise. They offer the promise of streamlining operations and business processes and increasing protection against cybersecurity threats.

Building the bridge to tomorrow

Platform-based businesses can motivate consumers to share data through the benefits intrinsic to participating in the platform. Once the data is acquired, businesses can integrate it and use the insights gained to deliver solutions focused on wellness and prevention. This will allow them to extend their reach into the consumer's everyday lives. They will also capture revenue earlier in the value chain, working with health consumers before they are sick. Health organizations – incumbents and new entrants alike – need to know how they will fit into a platform-based health ecosystem in a way that allows them to support the highest quality care, be competitive and generate revenue. Below are some things health-minded organizations should consider as they consider how to operationalize this transformation.

1. Start with an understanding of the current landscape and a transformation-minded strategy: how will you interact with the wider health ecosystem? Set a transformation agenda that optimizes the business of today while innovating and growing the business of tomorrow. Use a multi-horizon approach to iteratively introduce game-changing services to the market focused on the individual person. Build purpose company-

wide and use leading practices from change management and operational redesign to march consistently toward that goal.

2. Shrink the core, build for agility: the way forward is to maintain core functionality where IT infrastructure already exists (in health, the enterprise system environment includes both enterprise resource planning and EMR) while investing in adaptable infrastructure that supports a connected ecosystem. Health businesses can look for legacy system optimization, while transitioning to open architecture, blockchain-enabled solutions, and the development of customer-focused health care applications built within vendor-neutral platforms. Starting from scratch is an opportunity to build the right way the first time. Create an adaptable health IT system that supports frictionless, permissioned data sharing; that stores data separately from the applications that collect, edit and display it; that has interfaces designed for particular users and use cases; and that is accessible when and wherever needed.

3. Build intelligent automation: intelligent automation is the integration of robotics with multiple components from different emerging technologies. In health care this includes RPA of both the back and front office (i.e., patient interaction), cognitive analytics, other digital automation tools enabled by technologies such as the Internet of Things, and a portfolio of health AI solutions that support both operations and care delivery.

4. Design for trust:

instill a risk optimization mindset and embed trust into services and products from the outset. This means mapping the flow of data through your organization; analyzing business processes for risks; carefully assessing new products or services prior to implementation; and building controls into the management of every project. This will help organizations make the right strategic decisions and facilitate the growth and future success they are looking for. In health, this includes cybersecurity solutions that extend to medical devices and wearables, as well as traditional risk services enabled by analytics.

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Contributors



Article 1:

Can we unlock the power of digital health technologies and make the leap from promise to practice?

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Article 2:

How redefining value in health care is leading to new ways of delivering care

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Article 3:

How does private equity affect the health of health care companies?

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Article 4:

Building for now, next and beyond in health care: how new technologies can bridge vision and reality

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About EY Global Health

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Across the world, health care systems and entities are under unprecedented pressure. Spiraling costs, exacerbated by aging populations and emerging market growth, are bringing newfound focus on value and outcomes. Mobile health and data analytics promise to revamp care delivery but are also bringing in competitors from other sectors. For governments, payers and providers, these trends create a host of challenges: extracting insights from “big data,” partnering in new ways, boosting operating efficiencies and more.

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About EY Global Health

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.

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