
DIGITAL TRANSFORMATION

ANYWHERE CARE

**A VITAL SIGN OF WHERE
THE HEALTH CARE FIELD
IS HEADING**

Disruptive digital health technologies accelerate change on two fronts: shifting the care location to anywhere, anytime and the care model to preventive, personalized and participatory.

FUTURE HEALTH SYSTEMS WILL BE DIGITAL, PERSONALIZED AND POPULATION-FOCUSED

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.

Recent EY health thought leadership reports signal that participatory health is a profoundly disruptive force for change. A change in the way we view and think about health and care, participatory health is an active partnership between an individual and health professional on all issues related to an individual's health.

The shift toward participatory health is changing the bedrock of the health system from a supply-side push of services out to the consumer, to one in which the pull of consumer demand determines value and activity. The "how" of health care is changing fast. The successful health system of tomorrow will bring about participatory health by being on-demand, connected and data-driven.

PARTICIPATORY HEALTH

Participatory health is a simple concept with powerful implications. It is firmly grounded in patient engagement and patient-centered care. The health system of the future will be consumer-centric, wellness-oriented, care everywhere and digitally connected. Participatory health can reshape the demand for health care by giving people the right tools to manage their health, lifestyle choices and chronic conditions in vastly different ways. Participatory health can ultimately drive a healthier population through prevention and wellness. Emerging technologies including patient engagement tools, virtual care, smart homes and artificial intelligence (AI)-powered analytics underpin this model. The challenge for health organizations is to create new models of care that mitigate risk and control costs while, at the same time, delivering best-practice outcomes and an exemplary consumer-patient experience.

EY PARTICIPATORY HEALTH FRAMEWORK



Health and Wellbeing Support

Services provided to people or communities by the health and social care professions, supplemented by informal caregivers for the purpose of promoting, maintaining, monitoring or restoring health.

Personal Health Cloud

Captures and curates a digital social and bio-portrait of deep personal data, including biometrics, which creates a lifelong narrative of health, wellness, environment and behavioral traits, including moods, emotions and propensity to act.

Data Fusion

The point at which the curation and navigation data and insights interface in a structured way with the system as AI and analytics turn complex information into usable insights and new solutions.

Supporting Platform

Demand-driven global marketplace based upon digital platforms delivering network effects, value and benefit.



Hospitals and health systems across the country 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.

Many of the forces of change are well known and well understood. What is less clear, is what to do about them: What combination of actions, investments and innovations will extend what is possible for hospitals and health care providers?

Disruptive digital health technologies accelerate change on two fronts: shifting the care location to anywhere, anytime and the care model to preventive, personalized and participatory.

To remain relevant in a fast-changing environment, 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 tomorrow requires hard decisions around what to pursue, what to repurpose or divest and where to invest. This means not only optimizing supply-side efficiencies through reducing cost and driving time efficiencies, but also deeply understanding the transformative impact of digital health technologies on the ecosystem.

Successfully managing the duality of growth is unlikely to be achieved through incremental steps. Bold and transformative actions will be needed. Consistent with trends around the globe, U.S. providers must weigh where their best bets lie and chart their courses to bridge the gap between the health care organization of today and the vastly differentiated system of tomorrow.

DIGITAL TRANSFORMATION MAKES IT POSSIBLE TO DO THINGS DIFFERENTLY

Digital health technologies are the enablers to change how things are done in health care. But for many in the field, what to change calls for a new strategic direction. Three shifts made possible by digital transformation are moving the health field toward a highly personalized, participatory anywhere and anytime system.

»» SHIFT 1 »» Convenient care anywhere, anytime

Convenience and personalization are the core features of the emerging model of anytime, anywhere care. Virtual health, or the use of technologies such as apps, wearable and environmental sensors, video and chat platforms, is becoming integral to the health system. Three-fourths (74%) of large employers now offer plans that include telemedicine, up from 27% in 2015, and a recent EY survey found that more than half of U.S. consumers (54%) and physicians (56%) expect smartphones to become the main touchpoint with the health system in the next decade. Virtual hospitals are not unknown, with both Mercy Virtual Care Center, in Chesterfield, Mo., and Utah-based Intermountain Healthcare providing basic and advanced medical care through virtual care programs and virtual monitoring 24/7 throughout their respective networks.

Value-based reimbursements that favor lower-cost settings are transforming the health ecosystem, prompting in part the rise of alternative care locations including retail clinics. Nontraditional players — entrepreneurs, retailers, telecommunications and technology companies — are entering the health field and draw upon their core capabilities around logistics, vertical integration and a deep understanding of consumer behavior to develop



consumer-oriented services. And, the convenience and ready access of retail health appeals to consumers. As EY's study shows, three in five (60%) U.S. consumers are open to having nonurgent care in a nontraditional setting and more than half (54%) are willing to be treated for common acute symptoms online instead of seeing a physician in-person. Retail clinics see opportunity in the demand-driven marketplace to remake the primary care system for consumers and to reduce avoidable hospitalizations for those with chronic conditions by expanding into managing complex care at home using telehealth technologies.

Many conditions that conventionally have required hospitalization can now be managed in lower-acuity settings, leading providers to seek opportunity across the full spectrum of care. Some acute care facilities are extending into ambulatory care sites or investing in strategically located urgent care centers. These not only shift demand away from emergency departments to lower-cost sites, but also indicate a trend toward responding to consumer demand for greater convenience by creating new avenues for care. Bringing care closer to the patients' homes, these lower-cost centers form a new distribution system with patients triaged into a network of easy access points, driving strong relationships and within-system referrals.

These emerging care models inevitably mean that the role of the physician will continue to evolve to one of a data-driven conductor, coordinating the care elements and range of service providers to better manage chronic diseases and, eventually, proactively manage lifestyle and wellness. Case in point is the management of multiple chronic conditions (MCC) — 59.6% of U.S. adults live with two or more chronic conditions. In a health system designed around a single-disease focus, for these patients, doing the right thing in the most appropriate setting is key. Quarterbacked by digitally savvy physicians, teams of health professionals working at the full extent of their scope of practice and novel technologies combine to drive the personalization that delivers lifelong engagement with health.

The “what” to change may include...

Novel sources of data and information support care delivery outside of traditional health settings including anywhere anytime care in the home and on the go. Emerging care models and new care locations mean that providers will need to re-orient to focus on convenience, personalized care and exemplary customer service. This includes taking the hard decisions around capital and resources and streamlining services targeting the acutely ill or injured. The common thread is the new consumer experience of connected and seamless care that is created as digital health technologies embed into the core of the health system.

»» SHIFT 2 »» Moving from digital to smart

The digitization of health care is well underway, but just changing information into a digital form falls considerably short of achieving the goal of seamless and connected care.

Hospitals 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 tames 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.

Some hospitals are already making this transition, going beyond digital and introducing data-driven analytics to improve patient care, staff and patient experience and to optimize operations. In 2018, Tacoma, Wash.-based CHI Franciscan Health, now part of CommonSpirit Health, was the fifth hospital to join a state-of-the-art “com-

Smart health systems will leverage AI technologies to smooth end-to-end care experiences for patients, optimize staff experience and achieve operational efficiencies.

mand center” ecosystem. An AI-powered command center, often compared with 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. Internationally, early adopters include Bradford Hospital in the U.K., the first hospital in Europe to introduce a command center approach to minimize delays, prioritize the sickest patients and predict bottlenecks in patient flows. Humber River Hospital in Canada opened one such center in 2017, which, along with hospital-wide digital transformation, is expected to improve hospital efficiency by around 40%. This is planned to extend to patients cared for in the home.

And, hospitals leveraging smart technologies to monitor patients at home is a natural step toward anywhere, anytime care. As people age, living independently can become increasingly tenuous as risk of falls and related injuries increase. Falls, for example, lower quality of life and are expensive, costing Medicare \$50 billion in 2015. Successful aging in place relies, in part, on smart home environments that monitor vital signs and activity levels and provide functional assistance for independent and safe living at home.

Looking ahead, in an increasing globalized and interconnected environment, new technologies may present fresh opportunities. Potential markets for virtual health services such as retail, primary and telespecialty care may arise as emerging or developing economies seek to build, rather than retrofit, health care markets. For example, Jiahui International Hospital in Shanghai holds an “international second opinion” clinic with Massachusetts General Cancer Center to provide multidisciplinary treatment for patients with lymphoma or myeloma. Potential exists to take advantage of the 24-hour cycle. Consider the partnership between Atlanta-based Emory Healthcare and the Royal Perth Hospital in Western Australia. Twelve hours ahead of Atlanta, remote intensive care unit monitoring technology is used by an Emory critical care team located on-site in Perth to support the overnight shift in intensive care for patients located in the U.S. In the first 15 months, Emory discharged more patients to return home rather than to nursing homes or long-term care hospitals and saved \$4.6 million in Medicare spending, as well as decreased the 60-day inpatient readmission rate by 2.1%.

The “what” to change may include ...

The health system of the future not only needs to be connected and seamless, but also reflect the deep and profound shift in perspective around health toward well-being and wellness, greater convenience, flexibility, self-direction and personalized experiences. Smart health systems will leverage AI technologies to smooth end-to-end care experiences for patients, optimize staff experience and achieve operational efficiencies. Such systems will draw upon digital health technologies and consumers’ growing willingness to share personal information, to go beyond sick care to healthfulness – to inspire, encourage and teach individuals to make positive care and lifestyle choices and be engaged in and accountable for lifelong health. AI technologies and predictive analytics will drive personalization and engagement with a deep understanding of behaviors, attitudes, market segments and archetypes that cut across demographics to drive highly targeted, personalized omnichannel experiences and relationships.

» SHIFT 3 » Manage social determinants, not just clinical care

Many of the primary drivers of health sit outside of the health care system. Unmet needs arising from food insecurity, poor housing and a lack of transportation can affect health outcomes including risk of developing chronic conditions, increased costs and avoidable care utilization. High-touch, high-cost conditions like behavioral health issues, chronic disease management and social needs, such as loneliness in the aging population, are all major drivers of health expenditure.

Individuals’ ability to attain their highest level of health is tied to much more than their clinical care (20%). In fact,

WHAT LIES IN THE FUTURE FOR HOSPITALS?

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 like 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.

40% has been attributed to social and economic factors, 30% to health behaviors and 10% to physical environmental factors. Social determinants of health (SDOH) affect health risks and outcomes. Jay Bhatt, D.O., MPH, MPA, senior vice president and chief medical officer of the American Hospital Association, says, “We can begin to address SDOH by asking, ‘What’s of high impact in our community? How is SDOH different from social needs?’ SDOH is upstream driving policy, systems and environmental interventions. Social needs are screening, referring and navigating services. And, by taking what health systems know best — quality improvement as well as building relationships — and applying it systematically to SDOH, we’ve seen health systems and communities partner to reimagine and transform health by tackling even just one intervention, such as hunger.”

Regulatory and value-based reimbursement systems seek to shape hospitals and health systems toward improving service quality and safety, to take a lead in preventive services and to better coordinate services before, during and after a hospitalization. Many providers are assuming a more prominent role in population health management by collaborating with primary and community health systems along with nonhealth systems and together addressing the broader determinants of health inequities.

To this end, providers can play a more effective role in extending care beyond the hospital and in addressing some of the root causes of poor health. Data are vital for identifying at-risk populations and targeting services to improve health and use of appropriate care. Danville, Pa.-based Geisinger Health System has taken the initiative by introducing a gene screening program for early identification of inherited cancers and cardiac events. In the longer term, genomic profiling may become incorporated as part of routine clinical care to engage patients in anticipatory health planning and risk mitigation through behavioral and lifestyle modification.

Moving closer to those at risk will build the necessary bridge between the expertise held by the hospital and the local community. Hospitals, for example, have a critical role to play in working with the community to combat the rising opioid crisis. Consider Oregon Health and Science University Hospital in Portland that along with community partners has developed a care model for treating opioid and heroin dependency in medically complex patients. Upstream investment in community partnerships with social and community services and preventive programs like the housing initiative of Chicago-area UI Health Hospital & Clinics can mitigate recurring health problems and address the community conditions that influence health status.

The “what” to change may include ...

Providers can shift the dynamics in the broader ecosystem that lead to poor health by pursuing prevention and wellness. This includes venturing beyond the health system to build bridges through partnerships to deliver integrated population-level solutions. Providers can form the backbone of a health system that deals with health inequities and improves health for all, measured as health achievements, disease prevention or appropriate consumption rather than as throughput.

KEEPING THE LIGHTS ON WHILE LAYING THE GROUNDWORK FOR THE FUTURE

Health care is moving toward a participatory health ecosystem, one that puts consumers at the center of their own care journey. To avoid being on the wrong side of this emerging and disruptive trend, providers will need an appetite for ambitious transformation and the will to tackle hard choices around the legacy organization — where to divest, revitalize or pursue innovation.



David Roberts, EY Global Health leader, summarizes it this way: “Opportunities emerge at the intersection of consumerism, technology and markets for those willing to explore beyond their traditional boundaries. To do this, strategic agendas — whether the focus be global, regional or local, will require laying the groundwork that not only supports the business of today, but sets in motion the business of tomorrow. For some, this will mean choosing where to play — either in adjacent markets or in undertaking radical changes and pursuing innovation. For others, this may mean deciding on the right fit — whether to lead, partner or follow in the footsteps of others.”

Pressing forward with an innovation and change agenda is vital. The future for health care lies in bold changes in organizational models as technologies mature, disruptive solutions succeed and health systems become participatory and smart. Digital health technologies offer the tools to harvest the power of disruption, but it takes courage to change to realize the value.

REFERENCES

- Booske, Bridget C. et al. “Different perspectives for assigning weights to determinants of health.” County Health Rankings Working Paper, February 2010.
- Conley J. et al. “Alternative Strategies to Inpatient Hospitalization for Acute Medical Conditions: A Systematic Review.” JAMA Internal Medicine 2016;176(11):1693-1702, published online Oct. 3, 2016.
- EY. Health reimaged - a new participatory health paradigm. 2016 <https://www.ey.com/au/en/industries/health/ey-participatory-health>
- EY. Healthcare: the cross-currents of convergence deliver participatory health. 2017. <https://www.ey.com/au/en/industries/health/ey-participatory-health>
- EY. NextWave Health Survey 2019. United States Consumers and Physicians. https://www.ey.com/en_us/future-health/is-your-health-strategy-keeping-pace-with-consumer-expectations-or-shaping-them
- Horton Katie et al. “Older Adult Falls – Costly But Not Inevitable.” Health Affairs Blog, April 4, 2018.
- King, D.E. et al. “Multimorbidity Trends in United States Adults, 1988-2014.” Journal of the American Board of Family Medicine 2018;31(4):503-513.
- Klasko, Stephen president and CEO, Jefferson Health, Philadelphia. “The Future of Hospitals” panel. World Economic Forum, January 2019. <https://www.weforum.org/events/world-economic-forum-annual-meeting/sessions/an-apple-a-day>
- Rae, Matthew and Cox, Cynthia. “More employers are paying for telemedicine, but enrollee take-up has been relatively low,” Peterson-Kaiser Health System Tracker, Oct. 3, 2018. <https://www.healthsystemtracker.org/brief/more-employers-are-paying-for-telemedicine-but-enrollee-take-up-has-been-relatively-low/#item-start>
- Raynor, Michael E. “Introducing perspectives on innovation.” Deloitte Insights, April 30, 2013. <https://www2.deloitte.com/insights/us/en/topics/innovation/introducing-on-innovation.html>
- Retail TouchPoints. “CVS Will Pilot ‘Health Hub’ Concept Stores In 2019,” Nov. 7, 2018. <https://www.retailtouchpoints.com/features/news-briefs/cvs-will-pilot-health-hub-concept-stores-in-2019>
- University of Wisconsin Population Health Institute. “County Health Rankings Show Burden of Severe Housing Cost Tied to Poor Health,” March 19, 2019. <http://www.countyhealthrankings.org/sites/default/files/differentPerspectivesForAssigningWeightsToDeterminantsOfHealth.pdf>

EY AUTHORS

Michael Botos | Partner Strategy, Innovation & Transformation | Ernst & Young LLP | michael.botos@ey.com
Kenny O'Neill | Senior Manager Digital Health Strategy | Ernst & Young LLP | kenny.oneill1@ey.com
Sheryl Coughlin PhD | Senior Analyst Health Sciences and Wellness | Ernst & Young LLP | sheryl.coughlin@au.ey.com

AHA CENTER FOR HEALTH INNOVATION AUTHORS

Lindsey Dunn Burgstahler | Vice President, Programming & Intelligence | ldunn@aha.org
Suzanna Hoppszallern | Senior Editor, Data and Research | shoppszallern@aha.org
Mital Patel | Senior Director, Market Research & Intelligence | mpatel@aha.org

The views reflected in this article are the views of the author and do not necessarily reflect the views of the global EY organization or its member firms