The IT Innovator's Guide to

Digital Transformation in Healthcare

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Introduction

Technology has had a truly transformative impact on the healthcare space. Thanks to innovations in technology, tools and their respective processes, the practice of treating patients has shifted from mostly reactive to proactive, enabling physicians and caregivers to approach healthcare in a more holistic fashion.

As part of that shift, hospitals, wellness centers and physicians' offices are focusing on providing value over volume[1], taking healthcare beyond the four walls of the facility and into patients' homes, places of work and social centers. The concept of whole health is much easier to attain with technology such as artificial intelligence, analytics, wearables and mobile health (mHealth) apps, to name a few.

Advances in healthcare technology can be found in both patient care and in the back office, giving physicians and other caregivers a leg-up on providing a positive patient experience from first visit to final billing through faster, more efficient service and deeper patient engagement.

As with any transformative technology, healthcare solutions need a network powerful enough to derive their true value. Speed, agility and flexibility all are critical

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in running the systems necessary for healthcare providers to provide exceptional patient care wherever, whenever. The right infrastructure is a must for providers and healthcare organizations adopting the technologies they need for digital transformation and high-quality, patient-centered care.

The State of Healthcare: A Sea Change

For so many years, doctors and healthcare providers focused on treating the ailment, not the patient—a practice that often provided a temporary solution for a long-term problem. As a result, patients who were living with chronic illness or disease often included doctor's visits in their weekly or monthly plans, costing them—and their insurance providers—thousands of dollars per year.

Take, for example, the cost of treating type 2 diabetes. According to the American Diabetes Association, a person diagnosed with diabetes spends on average $16,750 per year, with about $9,600 of that amount directly attributable to diabetes. Their medical costs are 2.3 times higher than non-diabetic people.[2]

Mounting healthcare costs and other factors, including recognizing the lower quality of life patients with chronic conditions often face, have prompted a change in the way caregivers
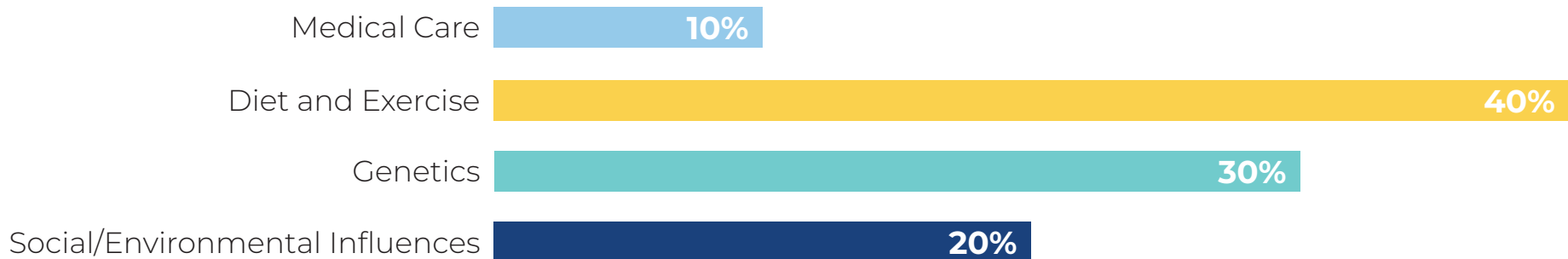
today are thinking about patient treatment. A growing number of practitioners who are approaching patient care holistically—treating the illness and the patient—is on the rise, as both practitioners and insurance providers recognize providing treatment is only part of the healthcare puzzle. According to research from the Kaiser Family Foundation, medical care is responsible for only 10 percent of preventable mortality, well behind other factors including diet and exercise (40 percent), genetics (30 percent) and social/environmental influences (20 percent).[3]

That sea change in thinking is having an effect on the entire healthcare process, from the way patients are seen to the way their information is collected and managed. Patient care is swiftly being approached from a population perspective, as practitioners identify trends in wellness and factors influencing not just one, but many, and promoting prevention over treatment.

Factors Affecting Preventable Mortality

Factor	Percent
Medical Care	10%
Diet and Exercise	40%
Genetics	30%
Social/Environmental Influences	20%

Samantha Artiga and Elizabeth Hinton, "Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity," research paper, Kaiser Family Foundation, May 10, 2018
https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/

Technologies Necessary for Digital Transformation

Digital transformation is not a one-size-fits-all solution. Each industry has its own technologies, and each organization undergoing digital transformation has its own reasons for doing so, as well as its distinct process and cultural mindset to keep in consideration.

In the healthcare space, the ultimate goal of digital transformation is strikingly similar among organizations: to provide the utmost in patient care effectively and efficiently. Some organizations may focus more on technologies to advance healthcare initiatives on the patient side, such as telemetry or mHealth, while others may look to digital transformation to streamline their front- and back-office processes to become more patient-centric. Regardless, of the catalyst, at the heart of every undertaking is an infrastructure designed

to help organizations work smarter, faster and more efficiently. That includes technologies that streamline processes, improve productivity and enhance the patient-caregiver experience.

Analytics, along with big data, is helping healthcare providers tackle myriad issues such as understanding the best times to staff a facility.[4] Such insight can help healthcare facilities save money and improve patient satisfaction by having appropriate staffing levels when necessary, thereby saving patients from having to wait hours to be seen. Analytics also could be used to find patterns in multiple factors to help determine which patients could be at risk of abusing opiods,[5] thereby helping stem what is currently a national epidemic.
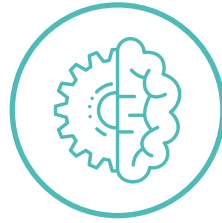
Artificial intelligence, too, is proving its use already to healthcare providers and administrative staff alike. For example, AI is being used with electronic health records to make them easier to navigate and to automate some of the more routine processes associated with using them. It's also being used in labs to "read" pathology slides and identify issues to help clinicians better identify potential diseases or illnesses.[6]

**Wearables** may not seem like new technology anymore, but their adoption in the healthcare space has been widespread and growing. Wearables are being used to monitor patient health, collect data in clinical

trials and a variety of other tasks that otherwise would require patients to visit the doctor's office. Eliminating such visits can free physicians to spend more time providing more quality care to those patients who need it, not to mention freeing patients from having to come into the office.

Some postulate wearables may even signal the future of healthcare: Healthcare and technology experts attending the World Economic Forum Annual Meeting in Davos, Switzerland, in January 2018 noted they believe wearables and other similar technologies will play a major role in patient-centered preventive care, as such devices increasingly are being used to monitor heart rate and blood pressure.[7]

Less discussed but growing in use
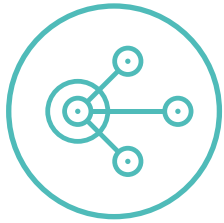
among providers is the use of **social media** in health management. Increasingly, healthcare providers are using the power of social networks to convey health-related information to large groups of people; to provide updates on events or occurrences that could impact the health of a population, such as smoke levels of nearby forest fires; and to reach audiences consisting of current and potential patients.

Social media also can be used by researchers to track demographic and healthcare trends such as the spread of influenza or food poisoning. Such information could help providers determine where the next most likely areas of outbreak will be and take appropriate steps, such as increasing staff or stocking up on necessary supplies in those areas.

And finally, **mHealth** is being adopted by a number of healthcare organizations to better connect with patients. Mobile apps are being used in a number of ways, including accessing clinical information, communicating with and monitoring of patients using medical wearables and collaborating with other healthcare providers to determine treatment options. mHealth has an added concern of security, however, as the information flowing through these apps is patient-centric and could put a healthcare provider at risk should the mobile device be lost or stolen.

Other technologies exist that can be included in a healthcare organization's digital transformation. The ones listed are those that can assist organizations in becoming more value-focused as well..[8]

Building the Infrastructure for Digital Transformation

Digital transformation in healthcare requires an infrastructure that is capable of supporting multiple technologies both on-premises and in the cloud and can manage the data transport that many patient-centric technologies require.

As processes and applications become even more digital-centric, digital transformation is imperative for healthcare providers in their ability to provide the utmost in patient care. One-off digital initiatives in areas of technology such as social, mobile, analytics and cloud have converged as a required transformation to ensure high patient satisfaction at the highest levels of efficiency, saving organizations and patients time and money.

Hybrid cloud and network environments, SD-WAN and high-speed broadband are just some of the technologies that can enable

healthcare organizations to better manage applications across all locations, while networking components such as WiFi and unified communications can ensure all employees of a provider organization are productive at all times.

Working with a network service provider can help ease the burden associated with building and maintaining a capable network. By working with a network

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services provider, healthcare organizations can leverage virtual and physical private Ethernet connectivity to assure there are no issues regarding network performance and availability for critical applications at all locations, from the doctor's office to the clinical lab, from urgent care centers to hospitals. They also can receive all or some of their most critical connectivity functions as a managed service, including managed connectivity, WiFi, security, voice and business continuity, among others.

Conclusion

The rising cost of healthcare is forcing many providers to re-examine the way they interact and treat their patients, which in turn has led to a movement focusing on healthcare provider value over volume. All members of the healthcare organization, from practitioners to administrators, are now approaching healthcare in a more holistic fashion, focusing on the whole patient and not just the illness or disease.

Technology is playing a critical role in the value over volume model, enabling greater communication and collaboration bet ween patient, practitioner and insurance provider to help drive down costs, improve operational effciencies and increase overall health.

To enable these and other transformative healthcare technologies, healthcare organizations must undergo their own digital transformation. Healthcare solutions need a network powerful enough to provide the speed, agility and flexibility necessary to provide exceptional patient care wherever the patient may be.

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