



How a digital patient experience can lead to future outcome driven healthcare: thoughts for executive teams

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Keywords: Healthcare; digital patient experience (DPX); healthcare quick response (QR) codes; healthcare integration; outcome driven healthcare

Received: 05 January 2023; Accepted: 25 January 2023; Published online: 28 January 2023.

doi: 10.21037/mhealth-23-2

View this article at: <https://dx.doi.org/10.21037/mhealth-23-2>

Foreword

Healthcare is a complex system, perhaps more so than any other. For the past 40 years, I've been trying to figure it out. Having spent time as a medical student, then as a resident in neurology followed by two decades as an attending physician, I came to understand both the science of medicine and the unique circumstances of individual patients. As Board Chair of a health system, I had the opportunity to see the financial, strategic, and regulatory dimensions of the environment in which patient care is rendered. Over the past 14 years as a healthcare executive in a multi-hospital health system that operates in two states, I have seen firsthand how difficult it is to bring about change to a system with so many moving parts and so many diverse stakeholders. Top-down mandates die quickly, and it is often difficult to predict the response to solutions when various stakeholders see the problem very differently.

This article offers an interesting roadmap to a future that is inevitable, one that welcomes bold and determined innovators and will frighten the timid and risk averse.

John Patrick and Al Villarín are a brilliant pair of authors who understand technology and healthcare. John spent years as a visionary leader at IBM prior to obtaining a doctorate in healthcare administration. He and I served together on a hospital board where I came to understand his remarkable ability to spot trends, especially related to technology, many years before the rest of us. Al is a medical informaticist who is also a highly capable emergency room physician and currently serves as our Chief Medical Information Officer (CMIO). He is in the trenches every

day navigating the intersection of patients, clinicians, and technology. Like all other CMIO's, he bears the scars of the inevitable tensions that current IT systems impose on patients and members of their healthcare team.

This article on the digital patient experience describes the evolution of the profound change that is underway. The pandemic has undoubtedly accelerated the transformation, but the digital experience is clearly here to stay. When face to face encounters became constrained by the pandemic, the number of virtual encounters soared. We all know that companies like Amazon who have mastered virtual commerce saw a breathtaking growth rate. Big tech disruption isn't going away. Healthcare systems that want to succeed based on outcomes, convenience and affordability need to admit that relative to our new competitors, we are digitally unsophisticated. To be successful, we need to look more directly at what consumers expect rather than focus solely on hospital-centric priorities. Our future is at stake.

The authors' views on how health systems need to move forward reflect the pain points and risks of the status quo and envision the undeniable benefits of a successful transformation. The authors have decades of experience in healthcare, and it shows; they avoid the trap many change agents fall into when proposing a technological solution to a complex problem.

Their suggested path forward isn't merely a choice between either new hardware or new software. Their proposal acknowledges both are necessary but ultimately, insufficient. The "hardware" part involves the capital investments needed to invest in systems and people to eliminate paper, simplify and automate processes, and

keep information secure. It also demands a certain degree of organizational restructuring to facilitate and accelerate change. But their solution also understands the “software” dimension requires tackling the cultural resistance to change and adopting implementation and improvement methods.

The central theme that emerged for me and the one that makes the plan so credible is the central notion of appropriate balance. Many other authors fail to appreciate the intricacies of healthcare systems and subscribe to large, at-scale interventions with confident assertions about results. Any proposal for change in a healthcare system must acknowledge that solutions must improve the lives of clinicians and patients. Neither of these constituents can lose if the change is going to last. The system must be implemented and maintained in a cost-effective manner, so the operations team needs to be on board as well.

This article offers a set of strategies that recognizes and respects the evolving expectations of consumers, the resilient nature of clinicians, the complex nature of healthcare, and the inevitability of the digital transformation that is upon us.

Fifteen years ago, John Patrick gave me some insight into his approach to solving complex problems. He said, “think big, act bold, start small, and iterate fast.” That advice is as true today as it was back when he first said it to me.

This important article is written with those principles in mind. I hope you enjoy it as much as I did.

—John Murphy, MD, President & CEO
Nuvance Health

Introduction

American healthcare has had a profound positive impact on the health of consumers over the past decades. Since 1900, other than a dip from the pandemic, the global average life expectancy has more than doubled from the thirties to more than 70 and is expected to continue to rise (1). Contributing factors to the significant increase are modern medicine, improved nutrition, education, improved sanitation, and improved lifestyle (2). Modern medicine includes life-saving medications, new diagnostic capabilities, and advanced surgical techniques.

Despite the likelihood of living longer, consumers of healthcare judge it based on their experience in consuming it and their out-of-pocket cost to pay for it. Consumers set the bar very high for customer satisfaction and compare

healthcare to other consumer products and services. They order something from Amazon and have it at their front door in hours. They call Apple support and encounter smart, friendly, people who really care about the problem for which the caller is seeking help.

The experience in getting access to a healthcare provider and getting health issues resolved is quite different from other consumer experiences. Although the healthcare experience is getting better, Amazon, Apple, and others are not standing still so the bar is rising. The pace of improvement in the healthcare experience is slow and, therefore, the gap between healthcare and consumer retail is getting bigger.

A phone call to a provider during a lunch break when a consumer may have time to call, is met with a message to call later because the office is closed for lunch. A message sent through a provider portal results in the consumer being alerted the message was received and a response will come within 2–3 business days. Once an appointment with a provider is secured, the consumer is asked to arrive 15 minutes early to fill out paperwork. When the consumer appears at the provider’s office, they are greeted with a clipboard and asked to fill out their name and date of birth multiple times and then write down all the surgeries, medications, allergies, family history, and insurance information, all of which may already be in the provider’s system.

Upon seeing the provider, the consumer is asked many questions. The provider may have limited eye contact while entering data on a laptop. If the consumer has had consults with other providers outside of the current provider’s network, the data from the other providers may not be available, resulting in a phone call to the other providers to ask for a fax of the data. Going between family doctor and specialist back to family doctor with tests at every visit is not easy, especially for the elderly. Integrated care across multiple providers is often not possible.

The U.S. spends more on health care as a share of the economy, nearly twice as much as the average OECD (Organization for Economic Co-operation and Development) country yet has the lowest life expectancy among 11 high income nations (3). There are many reasons why American healthcare costs are so high. Americans use some expensive technologies, such as MRIs, specialized procedures, such as joint replacements, and expensive tests more often than its peers. The U.S. has among the highest number of hospitalizations from preventable causes and the highest rate of avoidable deaths (4). Due to intensive

lobbying by the pharmaceutical industry, Americans pay more for medications than in any other country.

Concerns about the American healthcare system are not limited to the patients. Providers also have many concerns. A National Library of Medicine article about job satisfaction in health-care organizations, said, “Hospital personnel have difficulties in meeting the needs of their patients if their own needs are not met.” (5). Satisfaction of using electronic health record systems can be frustrating for providers in addition to patients. Even before the pandemic, healthcare provider burnout had reached serious levels among U.S healthcare professionals. In “Burnout in United States Healthcare Professionals: A Narrative Review”, the article reported more than half of physicians and one-third of nurses are experiencing symptoms (5).

In this article, we will discuss the evolution of healthcare, how the joy of providing healthcare can be restored, how acquiring healthcare can become as easy as consumer e-commerce, how digital innovation can be leveraged in healthcare, and the resulting benefits and byproducts.

Understanding the evolution

The evolution of patient and provider clinical experiences highlights the need for innovation to improve the digital patient experience (DPX). Aligning end user experiences to achieve synergy requires innovative changes to key processes. Medication reconciliation, patient self-scheduling, mHealth (mobile health), health information exchanges (HIE) can unify patient information across health networks. Advancing health equity, diversity, and inclusion through revised registration data definitions can address gaps in care necessary to improve clinical outcomes for all patients. Increasing access to care for all through digital patient information can drive consistent care across all populations. Healthcare employee exodus requires repurposing current clinical functions to automate processes and reduce the burden of care delivery. Competitive pressures from regional and national care delivery models through telehealth and cloud technologies has the potential to engage unified collaboration of care regardless of patient and provider locations.

Returning the joy to healthcare

The demands of today’s healthcare delivery system have put incredible pressure on the lives of the healthcare providers. We believe enhancing the patient’s DPX can also lead to a

more rewarding experience for the providers. Priority goals are addressing clinician burnout through workflow redesign, kaizen meetings, lean process workflows, onsite clinical and administrative team huddles, and executive leadership can promote clinical environment stress reduction via these various network initiatives. Making quick response (QR) barcodes readily available to patients for scanning with their smartphones can provide roadmaps to access information across a complex health network. Multiple themes such as providing guidance for self-scheduling, patient room information, LGBTQ+ website content, and post-care surveys can now be provided to patients conveniently without any burdens on frontline employees. Secure access to innovative services can be provided through biometric authentication via face, finger, and voice. This approach can reduce password burdens and enhance the availability of clinical information.

Make it Like eCommerce (designed for the population majority)

We believe patients can be empowered with digital automation and their experience can be comparable to the online consumer retail experience. First, frustrations over paper and faxes can be eliminated by providing patients with online scheduling, self-assessment and check-in, and comprehensive information accessed via QR codes. Arrivals can be registered in 5 minutes and data from the online services can be efficiently validated and integrated into the electronic medical record (EMR). New personalized application platforms such as Kyrus for patient self-scheduling can reduce the burden on the central referral office staff. Another application platform called Tonic can enable patients to submit personal information and thereby reduce the burden on frontline administrative desk staff. The patient information can then flow automatically into the EMR.

As mHealth follows an e-commerce vision and gains market share, the healthcare network brand and will gain patient loyalty. As patients have positive digital experiences, in concert with clinical care excellence, and become comfortable with enhanced workflows, they will increase their feeling of trust. From the online appointment scheduling to a telehealth or onsite clinical visit, admissions, and in-hospital care, through discharge, subspecialist, consultations, and ambulatory testing, can all be uniformly connected, seamless, and available across all care areas. A positive impression of healthcare can be achieved from

a single point of access for both patients and clinicians. The network HIE can offer numerous enhancements to the patient experience. The HIE can advance collaborative diagnosis, share data among all clinicians, capture appointment interactions by cloud virtual scribe integration, and provide access to national databases of clinical information for cancer and predictive serious disease management. The application of artificial intelligence has the potential to match patient demographics and symptomatic and genomic data to achieve the best cancer therapeutics.

Leveraging digital innovations

Leveraging digital innovations provides a strategy for improved outcomes, safer evidence-based analytical medicine, and reduction of inefficient legacy processes and stress producing clinical environments. Robotic process automation (RPA) can align quality with clinical care through evidence-based algorithms directing clinicians to use appropriate clinical and quality care models for best outcomes. Scribes, whether human or machine, can remove the doc from DOCUMENTATION, creating a more natural patient relationship, building trust, and reducing the burden of healthcare. Dynamic documentation can automate repetitive clinical EMR output during discharge, reduce search times, and promote a reliable distribution of clinical content from EMR to patients. A parallel process documents all clinical and results data to a patient portal, thus increasing personalized and efficient access, reducing the burden of paper and faxing, plus unifying a common patient data repository across the network.

Business Intelligence and data analytics can visualize clinical data for use by clinical, operational, and executive leaders through agile workflows and maintaining a focused alignment with network strategic goals. Data transparency creates a global network understanding which transforms actions into processes and data into knowledge. Over time, through evidence-based alignment and improved clinical outcomes at reduced costs, knowledge becomes our wisdom to deliver innovative care. The DPX is the vehicle to enable a balance of clinician and patient knowledge.

Connecting data, provider, and patient with a common understanding and establishing a unified care collaboration model can ensure accuracy, clear communications, and seamless care delivery. Privacy, an essential component of all we have discussed, can be maintained with anonymous data via removal of identifiable patient information, and

end to end encryption. Encryption scrambles the patient information such that even if there is a breach and the data is stolen, it will be unreadable and useless.

Benefits and byproducts

The DPX data can produce significant byproducts of data which can be leveraged for the benefit of predictive analytics, and pharmacogenetics for precision medicine. The byproducts can be applied to benefit population health. Data creates a predictive opportunity for reducing complexity and advancing evidence-based medicine. Data analytics is foundational for predictive, and knowledge-based clinical decisions. Financial transparency can be attributed to the patient experience. Provider ROI (return on investment) by evidence-based practices reduces costs and ensures high level care accuracy. Transparency of cost to patient and health network builds trust and operational stewardship. Artificial intelligence advances care through automated processes supporting research patient searches, and alerting clinicians of potential diagnoses such as sepsis, cancer recognition, and palliative care. In the near future, clinical predisposition denoted by genetic profiling, will focus on accurate medication and procedural therapeutics.

Ambulatory care, the front-door for access, can synergistically align with the patient's digital experience and drive patient visits for new evaluations, consultations, and referral management. Network integrity overall is enhanced by a robust referral management platform, fully integrated within the EMR, which can provide accurate access to network subspecialists with available appointments. The DPX increases throughput and care efficiencies in primary care, emergency and operative departments, and feeds billing, collections, and financial reporting.

Conclusion: How to make it happen

Health network leadership and integrated collaboration between IT, Finance, Clinical, Board, Patient, and Operational divisions must be aligned for a common goal of care delivery excellence. Each is measured differently: ROI, quality outcomes, cost reductions, and the DPX. The triad of clinicians, operations, and patients are equally responsible for success in healthcare's agile and innovative future. Unified clinical collaboration via cloud-based platforms reliant upon evidence-based clinical algorithms reduces diversity of clinical information access. RPA can reduce care delivery burdens, enhancing clinician productivity, and

improving the DPX. The health network leadership team must stay focused and support continued enhancement of technology innovation.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *mHealth*. The article did not undergo external peer review.

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at <https://mhealth.amegroups.com/article/view/10.21037/mhealth-23-2/coif>). LAV is the vice president, chief medical information officer of Nuvance Health, and a board member of SkywriterMD, Virtual Scribe Company; he also reports minimal ownership (1% stock) in SkywriterMD. LAV is a member of Nuvance Health Digital Patient Experience Executive Committee. JRP serves as an unpaid editorial board member of *mHealth* from March 2021 to February 2023. He receives royalties from Amazon for the sale of the book “*Health Attitude: Unraveling and Solving the Complexities of Healthcare*”. Besides, he is a member of Nuvance Health Digital Patient Experience Executive Committee, but not an employee of Nuvance Health and receives no fees for his service.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

doi: 10.21037/mhealth-23-2

Cite this article as: Villarin LA, Patrick JR. How a digital patient experience can lead to future outcome driven healthcare: thoughts for executive teams. *mHealth* 2023;9:8.

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