A Digital Strategy for Patient Engagement and Chronic Disease Management

Researchers at MIT’s Center for Information Systems Research define a digital strategy as “a business strategy inspired by the capabilities of powerful, readily accessible technologies, intent on delivering unique, integrated business capabilities in ways that are responsive to constantly changing market conditions.” The digitization of health care will push industry stakeholders to rethink how they develop IT-enabled patient engagement strategies, particularly for chronic disease management. This “digital-first” mindset requires health care providers to unify multiple technologies (e.g., mobile apps, connected devices, cloud) to aggregate and analyze various sources of data, segment populations, and serve customized content and functions to patients. An established digital strategy can improve the patient experience and reinforce adherence to healthy behaviors and medical regimens, resulting in more effective chronic disease and population health management.

The challenge

Industry research shows that traditional health care delivery can contribute as little as 10 percent to an individual’s overall health status, while behavioral, social, and environmental factors can account for over 50 percent of health status. Chronic diseases in particular, are primarily influenced by behavioral factors, such as medication adherence and lifestyle changes (e.g., diet, exercise).

The success of value-based care models depends on proactive patient health management and ensuring patients are self-engaged in their own care. Historically, health care organizations (HCOs) have had fragmented and unidirectional communication with their patients, but technology provides new opportunities for bidirectional, continuous information exchange.

Patient portals have become a common place to start, however many HCOs have seen underwhelming adoption due to limited functionality, user-unfriendly design, and other factors. Beyond portals, there are various other digital engagement channels through mobile health apps, IoT devices, telehealth, and the reemergence of the personal health record that patients can access on their smartphones. The challenge for HCOs is how to effectively leverage all of these various technologies in a unified way that can appeal to the diverse needs of the populations they serve.

The approach

Data sources

An initial step for many HCOs is to use data housed in the EHR (e.g., smoking status, gender, geographic location) and data generated by portal activity (e.g., click patterns, lookups, questionnaire results) to develop initial patient profiles and generate more customized online experiences. This is similar to what happens in the e-commerce world with our routine use of online search engines: tailored content and pathways, including margin and banner messaging that reflects our browsing or shopping habits.

However, the key to providing targeted support outreach is obtaining data from beyond the EHR. For organizations managing population risk, obtaining claims data from contracting payers is essential to capture a wider spectrum of care obtained by covered patients, including out-of-network visits, procedures, and cost data. Pharmacy benefit management (PBM) data, if available, informs clinicians of the patient’s level of medication adherence. Ideally, HCOs would also combine other sources of patient-generated health data (e.g., mobile apps, wearables) and social determinants of health data (e.g., housing, transport, social isolation) to create a more nuanced patient profile.

Applying an analytics layer (e.g., classification and segmentation algorithms) to these data sources allows health providers to develop risk scores and stratify patient populations across several dimensions: age, chronic illnesses, online behavioral preferences, health-related behaviors, etc. This data-driven insight makes it possible to offer more powerful engagement options.

**Patient activation**

HCOs should also seek to augment their population segmentation by assessing patients’ level of “activation,” or awareness and engagement with health care. Every patient brings a unique perspective (see Figure 1 below).

**Figure 1: A patient’s progression to sustained behavioral change**

Unaware of the need for change → Aware but not ready → Ready and preparing for change → Actively changing behavior → Maintaining change

- **Education and awareness**
- **Encouragement and engagement**
- **Timely reminders and intervention**
- **Patient control; self-efficacy**
- **Ongoing remote monitoring**
- **Incentives to sustain behavior**

Specifically, providers may choose to segment populations into categories using something like the Patient Activation Measure (PAM) designed by Dr. Judith Hibbard:

- **Level 1** patients are passive recipients of care, and do not yet understand that they must play an active role in their own health; research studies have shown that these patients typically have higher costs of care and worse outcomes than others.
- **Level 2** patients start to build knowledge about care, but still lack the comprehensive understanding of their health to take action.
- **Level 3** patients have key facts about their health and start to take action, but may still lack the confidence and skills to support behaviors.
- **Level 4** patients feel empowered to participate actively in their care, but may still need help to maintain behaviors when facing stress or crisis; this group typically has lower costs and better outcomes than others.

Each population segment can then be served different digital experiences based on this knowledge. Populations with chronic diseases in common can be automatically presented with relevant resources and information (e.g., educational content, online social groups, condition-specific mobile apps). Different age groups can be served life-stage-appropriate content (e.g., a 70-year-old man with chronic obstructive pulmonary

---

disease can be presented with very different online information and options than a 28-year-old pregnant woman). A “Level 1” patient can be coached, online and in person, to reach a “Level 4” and improve long-term costs and outcomes.

Once patients are activated to engage with providers via portals and other technologies, it is essential to make their experience as efficient and satisfying as possible to sustain engagement. Having digital tools in place for self-service, timely reminders, personalized guidance, or other means of ongoing “pulse checks” and just-in-time interventions, can help to sustain patient efforts toward their health goals (which also benefits the health system in various ways, such as fewer missed appointments, fewer readmissions, etc.).

User-design principles also come into play here to ensure digital tools make it easy for patients to take action, such as through intuitive functionality, easy navigation, single sign-on capabilities, etc. For example, patient information forms can be pre-populated with data already in the EHR or elsewhere, making it fast and convenient for patients to complete them. Customers should not be overloaded with choices for actions; good design should be based around simplicity, and the idea that sometimes “less is more.”

While technology is crucial to sustain patient engagement in the digital age, merely having a wide range of digital tools does not amount to having a strong digital strategy. Health care stakeholders should also evaluate how behavioral psychology and gamification can affect patient engagement. For example, social networks that connect patients with support (both inside and outside of the health system) can positively affect self-management for patients with chronic conditions. Peer groups and friendly competitions can reinforce healthy behaviors and care plan adherence, while reward systems (e.g., online badges, gift cards) can serve as powerful low-cost incentives.

Ultimately, HCOs should leverage technology to close the loop of data generation and capture, and give all stakeholders a comprehensive view of patient health and wellness. More advanced capture of patient-generated data will help to round out the patient’s medical record, and provide data for further psychosocial segmentation, preference information, and more.

Researchers from Ochsner Health System—a nonprofit academic health system based in Louisiana—put together a framework that serves as a sample model for how to leverage technology, patient-generated health data, and social networking to assist patients with chronic care management (see Figure 2 below).
Figure 2: A sample model of managing patient chronic disease(s)

This model does a good job of showing how healthy behavior can be sustained through an ecosystem of digital capabilities, social support, and a clinical care team (that can often interact virtually with the patient). The ecosystem is set up to support the patient through continuous data collection, real-time monitoring, regular reinforcement, and an analytics engine that drives proactive interventions.

Action items

There are a variety of considerations a health care organization will take when building out its digital strategy for sustaining healthy patient behavior and engagement. Below is a summary of action items to get started.

- **Your digital strategy should always have the goal of improving the patient experience.** Data capture and analysis of patient behavior and health status will help to develop detailed patient profiles for more targeted interventions.

- **Discuss with clinicians the potential use of these new data sources in supporting their workflows.** Assess your EHR’s ability to accept, store, and display new forms of patient-generated health data and social determinants of health data.

- **Consider how you will assist patients with using an increasing variety of digital devices.** Options include opening physical support stations onsite, delegating support to different clinical departments, and employing vendor products.

- **When deploying a digital strategy, take into account principles around user design, behavioral psychology, and gamification.** Patients can benefit greatly from technology, social support, and clinician guidance, but they do not always act in their own best interest, even when dealing with chronic illness.

- **Begin to measure patient activation levels using PAM or a similar metric.** Work with clinical care managers and other providers to design interventions to reach out to less-activated patients and further engage them in their care.