mHealth's Role in Consumerism and Connectivity

Save to myBoK

By David Levin, MD, and Debra Gordon, MS

Consumerism in healthcare is not "coming." It is already here, affecting every aspect from the clinical setting to the health information management (HIM) office to the health information technology (HIT) department. Or at least it should be. Unfortunately, too few healthcare systems in the US have integrated the consumer into their HIT, let alone put them at the center.

The consumerization of healthcare is driven by the perfect storm of aging Baby Boomers—who are used to getting what they want, when they want it, how they want it—the shift from volume-based to value-based care—which requires greater patient engagement for success—and the explosion of mobile devices that put the power of information and connectivity in consumers' hands. It is also propelled by the transactional society in which we live where technology allows us to bank, shop, reserve travel, even turn on the heat and lights in our house from 1,500 miles away with just a few keystrokes. So consumers are asking, "Why isn't healthcare transactional? Why is it still technologically stuck in the 20th century?" The answer is technical limitations, such as a lack of interoperability, in combination with inadequate leadership and decision-making, a lack of vision, and a traditionally paternalistic system.

The advent of mobile health (mHealth) coupled with the patient engagement movement will increasingly accelerate the changes already underway in healthcare. Health IT entities in turn have two options: Jump aboard while the consumer-focused train is still rolling relatively slowly; or find themselves running after a disappearing caboose.

Patient Engagement: The Cornerstone of HIT Consumerism

According to the American Medical Association's 2014 paper "Improving Care: Priorities to Improve Electronic Health Record Usability," effective communication and engagement "between patients and physicians should be of central importance in EHR design." An engaged patient is one who takes the necessary actions to obtain the greatest benefit from the healthcare services available to them, and who is an active participant in finding, purchasing, engaging in, and taking care of their own health.[1,2]

Studies find that engaged patients are more motivated to take care of themselves, make better day-to-day decisions about their health, are more likely to keep appointments, tend to be more satisfied with their care, experience fewer complications, and—most importantly—have an improved quality of life.[3,4,5] That's why patient engagement has been called the "blockbuster drug of the century."[6]

Engaging patients should be a foundational philosophy in any electronic health record (EHR) or other HIT system. Indeed, stage 2 of the "meaningful use" EHR Incentive Program requires it, and stage 3 will expand upon it. This, in turn, requires healthcare organizations to provide the "Three Ts" of patient engagement: transparency, transactions, and trust.
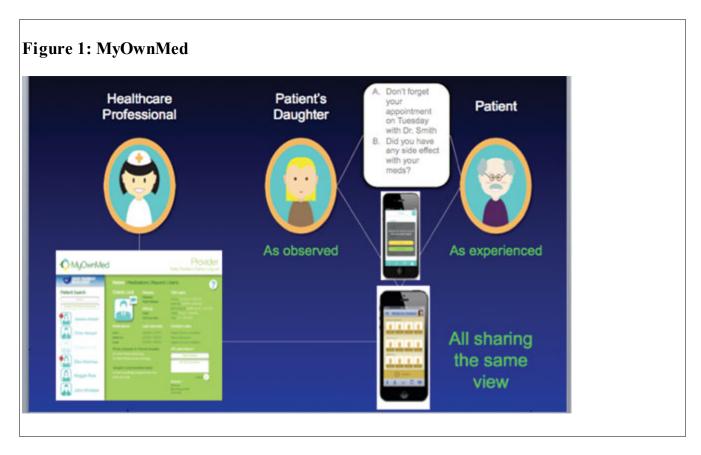
Transparency

Can consumers get the information they need? This includes providing access to the patient's entire health record, including medical notes—something an emerging body of research finds is not only possible but can improve patient satisfaction and outcomes.[7,8,9]

One study published in the *Annals of Internal Medicine* reported the outcomes of the OpenNotes project, in which 13,564 patients in 105 primary care practices in three states were able to view their entire medical record. After one year, 87 percent of patients had opened at least one note, with the vast majority (77 percent to 87 percent) reporting that the notes helped them

feel more in control of their care. They were also more adherent to their medications. Just one percent to eight percent reported confusion, worry, or offense at the notes.[10]

Participating physicians initially worried that providing access to the notes would disrupt workflow and confuse or worry their patients. Instead, they reported that the open notes strengthened their relationships with patients by enhancing trust, transparency, and communication, and that their patients seemed more "activated or empowered." Between 85 percent and 91 percent of doctors supported making the notes available to patients.

Transparency also means pricing transparency, including letting consumers know the cost of the procedure based on insurance contracts, and the out-of-pocket cost to the patient based on their insurance benefit. This is becoming more important given the increased prevalence of high-deductible health plans, which require that patients pay considerably more out-of-pocket for services.

Figure 1: MyOwnMed

Transactions

Transactions must be interactive. Patients should be able to go online to make appointments, communicate with healthcare professionals, renew prescriptions, complete paperwork and medical histories, register for admission, procedures, and tests, and pay their bills. They should also be able to populate their health record with their own data and notes.

Some of this is already required in stage 2 meaningful use, and stage 3 is expected to require healthcare providers to receive provider-requested, electronically submitted, patient-generated health information, including information submitted through mobile devices.[11]

Despite growing adoption of EHRs at the physician practice level, however, one recently published study found that just a third of physicians used the EHR for secure messaging with their patients, and just a fourth enabled patients to routinely view, download, or transmit their records online.[12] A National Research Council Report highlighted the fact that EHRs did not adequately provide "cognitive support" for healthcare providers, patients, and caregivers.[13]

Limiting patient interactivity creates an unnecessary barrier to improved outcomes. Patient-generated information provides valuable information about the patient's activities outside of the provider office, including emotional and physical status,

medication adherence, and side effects. Health systems like Group Health, Kaiser Permanente, and the Cleveland Clinic recognize this, and are pulling information from the patient into the EHR with questionnaires, patient summary forms, and e-mail communication—all in structured data formats—to improve patient satisfaction, quality outcomes, physician engagement and satisfaction, and costs.[14]

There are also a plethora of apps today that link mobile devices with the EHR and transmit data directly into the health record. Gregory Abowd, PhD, a professor at the Georgia Institute of Technology, predicted during his keynote speech at the American Medical Informatics Association's 2011 Annual Symposium that the majority of clinically relevant data would be collected outside of clinical settings by 2016.[15]

Of course, there are numerous concerns about an interactive EHR. Providers fear the additional time required to review patient entries in a timely manner. Patients worry that providers will not see or value the information. The information must be collected using standardized methods so it can be searched. And privacy and security issues must be addressed. In addition, systems must find new ways to encourage patients to access their personal health record, perhaps by instituting "opt-out" approaches rather than "opt-in" policies.

Another concern is the veracity of the data. Studies already found that patient-entered data are, by and large, accurate, and provide significant clinical value to providers.[16,17] Conversely, there is a growing body of evidence that clinicians themselves enter errors into the clinical record, in part because of technological challenges but also because of human error.[18,19,20]

Trust

Patients must believe that the information in their health record (and from other sources) is from a trusted source and is accurate. The system must also be reliable, secure, and private.

While the "Three Ts" are critical to consumer-based HIT, they won't mean a thing unless health systems use the information in meaningful ways beyond meeting meaningful use. That includes considering how patient-entered data can improve the patient/clinician experience, joint decision-making, and outcomes; how greater pricing transparency can improve decisions regarding appropriateness and cost of care, as well as patient collections; and how educating patients through the EHR and mHealth applications can drive engagement. The answers to these questions should be built into any HIT system's infrastructure and ecosystem.

The potential benefits are significant. A 2014 report from the Agency for Healthcare Research and Quality noted that making the patient the "ultimate owner of his/her electronic health information places increased responsibility on the patient for health maintenance," including becoming educated and staying informed about their condition, making good lifestyle choices, and playing an active role in data gathering through web-based reporting, wireless sensors, and other electronic communications. This engagement also aids patients in following preventative care and seeking early intervention for adverse conditions, as well as complying with medical treatments.[21]

Table 1: Key Components of Quality Apps

Quality apps contain the following characteristics:

- Secure and private
- Interactive
- Intuitive to use
- Portable across platforms
- Integrated into the EHR/Personal Health Record
- Able to transmit data wirelessly
- Designed from the user perspective to meet personal needs
- Designed to accept information from and provide information to consumers
- Tested with intended audience
- Developed to be integrated with the user's ecosystem (Facebook, Twitter, Pinterest, etc.)

Caregivers as Consumers

The first generation of consumer-facing applications took the form of patient portals or simple mobile applications. Heavyweights like Google, Microsoft, and major EHR vendors such as Epic Systems as well as a growing number of smaller startups now provide limited ways for patients and healthcare workers to connect and share information. While this is a good start, there is a much greater opportunity—caregiver engagement.

About one in three adults are currently providing care for a family member or friend, according to the Family Caregiver Alliance.[22] Most are in the "Panini generation," squeezed between caring for children and aging parents. They are sometimes called "secondary patients" who need as much guidance and support as the patients they care for. However, caregivers get very little support or training, a significant barrier to their ability to provide quality care. For instance, they often feel "abandoned" when their loved one is discharged from the hospital because they receive little information on how to copy that care in the coming days and weeks.[23] Yet studies find that greater preparedness and a sense of mastery can protect caregiver health and increase satisfaction with their role.[24,25,26]

Thus, caregivers need to be part of the consumerization of healthcare and given access to the health system and the patient's health record, as well as the ability to input data. Increasingly, caregivers can find applications that allow them to do just that. One example is MyOwnMed (see Figure 1), a customizable digital platform and mobile health app designed to capture health data submitted by patients and their caregivers. Information from a platform like MyOwnMed can be fed into the EHR, improving clinical decision-making and knowledge and providing practices and healthcare systems with the data necessary to manage the health of populations. This system also allows patients, caregivers, and healthcare workers the ability to communicate with each other to coordinate care.

Barriers to Consumer-Based HIT

There are significant barriers to successful HIT, no matter how or to whom it is delivered. One of the most significant is privacy and security, particularly in light of the numerous breaches recently occurring in the retail, banking, and healthcare worlds. Others include poor design and infrastructure of mobile health applications and devices, cultural issues in the environment in which they will be used, challenges integrating mobile apps, remote monitoring, and medical devices with the patient's EHR, and—most importantly—the need to deliver real value based on health-related outcomes. For example, Table 1 highlights the key components of quality mobile applications.

Overcoming those barriers requires robust leadership at both the clinical and IT level. Table 2 demonstrates key strengths chief medical information officers and chief information officers must have in order to be successful. As the table notes, technical skill is really the least important component of a successful HIT leader. Too often, however, HIT leaders are low in the other necessary strengths and high only in technical knowledge.

Table 2: Key Traits CMIOs/CIOs Need to Achieve HIT Benefits

Overall Benefits/Frustration Level	*ROI/VOI = Low Frustration Level – High	*ROI/VOI = Low Frustration Level – High
Skill/demand		
Technical IQ	High	Low
Operations IQ	Low	High

Strategic IQ	Low	High
Ability to manage challenges	Low	High
Emotional intelligence	Low	High
*ROI=return on investment; VOI=value on investment		

Patients Must Be in the Center of Healthcare

The development of HIT has traditionally been clinician-focused, not patient-focused. An age of patient empowerment and greater consumerism in health requires that systems shift from an emphasis on clinician-controlled data and information to one that puts the patient and caregiver at the center of the healthcare experience.

That means opening the EHR to the consumer, enabling mobile health applications, remote monitoring, and implantable devices to feed data into the EHR, and developing systems to monitor that additional data and provide value through actions designed to improve outcomes. It also means greater transparency and sharing of clinical information as well as cost and access-to-care data. Most importantly it means designing systems that are trustworthy and secure so that all participants, clinicians, patients, caregivers, and HIT specialists, can be confident and willing adopters of these transformative technologies.

Notes

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