6 Technologies in the Physician Practice of the Future

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We know what technologies practices are using today, but what will they be utilizing in 10 years? Here are six possibilities.

Source: Physicians Practice

It's fairly evident how technology is affecting the physician-patient relationship in 2016 — many clinicians will say it's for the worse. But prognosticating about how today's nascent technologies will evolve is more difficult.

Physicians Practice asked several clinicians and researchers working on the leading edge of innovation which technology areas are likely to change the way physicians practice in 10 years. Here are the six they talked about the most:

1. Virtual visits/telehealth
The trajectory is clear in terms of reimbursement, regulations, and market forces: Telehealth is well on its way to becoming commonplace. Technologies are getting more sophisticated to support telehealth, says Todd Evenson, chief operating officer at the Medical Group Management Association (MGMA). Even five years ago, the likelihood that patients had a camera on their home computer that would let them interact with providers was much smaller, while today it is almost automatic, he says. "I envision the simplicity will occur in leveraging the smartphone," Evenson adds. "I can see physicians using that to engage the patient, especially those in remote locations or who can't come to the office due to physical issues. It offers an opportunity to be less disruptive to their day. You could be in your office and connect with your physician instead of taking off part of the day to go to the doctor's office."
Kaiser Permanente is often a few years ahead of other organizations in technology adoption. Virtual visits are already something that is focused on at Kaiser, where the concept has been accepted by physicians and patients alike, says Michael J. Stone, an interventional radiologist who is regional co-lead of the "Innovation Engine" of the Mid-Atlantic Permanente Medical Group. "We continue to see it grow in terms of the number of video visits we have," he says. Looking across the industry, he says, "If you can provide convenience and efficiency and decrease costs, I see no reason why it won't continue to expand."
There are times a virtual visit will make sense and times it won't and practices will have to distinguish between the two. "I see it in the population health realm, where it may not be a physician interacting, but a care coordinator," Evenson says. "The technology should disappear and just be a conduit. Providers will recognize the spaces where it is most effective."

2. Wearables and remote monitoring
The potential to improve both individual and population health is clear through wearable technology and remote patient monitoring, says Susan Hahn Reizner, a faculty member and adviser to the Masters in Health Informatics Program at Northwestern University. "An essential element of population health management is enabling patients to care for themselves in their homes, with the right tools and education," she says. Wearables have the potential to support both. They can collect vital biometric data directly from the patient, and that data can then be used to personalize treatment and generate alerts in real time. Depending on their conditions, situations, and needs, patients can be monitored in a variety of different ways and with vastly different wearable devices, she adds.
What does this mean for the physician practice of the future? Wearable technologies will be used to keep patients healthier and out of hospitals, particularly by helping those with chronic diseases to develop and stick to healthy lifestyle choices and habits, according to Hahn Reizner. Managing chronic diseases more effectively also requires monitoring how well patients adhere to prescription drugs, dietary restrictions, and exercise regimens as elements of their treatment and health maintenance plans. Patients with diabetes, asthma, and chronic obstructive pulmonary disease (COPD) will benefit a great deal from wearables, she says.

3. Smartphone and apps
Joseph Kvedar, a physician and vice president of Connected Health, a nonprofit that creates and validates remote technologies to provide patient care, at Partners HealthCare in Boston, says how we think about mobile phones for continuous care will evolve as we move from paying for volume to paying for value. "As we get more aligned with value-based payments, physicians get more and more interested in these kinds of tools because they start to understand they will [improve care and reduce costs] by spreading the human resources in their practice across more patients, and these kinds of tools enable that," Kvedar says. The current crop of young physicians, even though they are considered digital natives, have been trained to take care of patients in the office and at the bedside, not in the context of mobile health, so medical education will have to change to incorporate these concepts, he adds.

"We are kind of at the dawn of using mobile tools to help with behavioral change," says Kvedar. "Healthcare providers are used to scaring or scolding patients into changing behavior, but we can use incentives or competitions or games using mobile tools to help people choose healthier behaviors, and doctors are just starting to get into that."

4. Machine learning/artificial intelligence

Looking to the future, today's nascent machine learning technologies may find their way into clinical decision support tools for physicians. Cognitive computing technologies, such as IBM's Watson, continuously learn from previous interactions, gaining in value and knowledge over time. Watson Health is dedicated to improving the ability of doctors and researchers to harvest new insights from data to deliver personalized healthcare.

Companies such as IBM and Epic Systems are collaborating with Mayo Clinic to bring the cognitive computing capabilities of Watson to EHRs. Epic is extracting patient data from health records, delivering it to Watson to be quickly compared with massive volumes of relevant clinical data, and then sending results back into the Epic EHR. This could lead to more rapid and thorough analysis of all the factors impacting patient care.

"I think [vendors] will make inroads, absolutely," says MGMA's Evenson, "but there is a lot of work to do there. There are opportunities to support the clinical decision, but not replace the physician's clinical decision-making capabilities."

Kaiser's Stone agrees that machine learning technologies will play a bigger role in the practice of the future. "The amount of medical data published is so vast that no physician could read it all, let alone memorize it, so we have to use technology to harness all this data that we have. In areas like personalized medicine, as we get more and more data we will have to use computers to best use that data," he says.

This type of learning is already having an impact via various population health and data analytics tools. For instance, the identification of high-risk events seems to be quite prevalent. What is missing is the workflow process to integrate such "insights" into action in real-time, says Munzoor Shaikh, director of the healthcare practice of West Monroe Partners, a Chicago-based business and technology consulting firm. The more connected the patient and provider worlds become, the greater the opportunity for partnership via real-time interventions, says Shaikh. He gave an example: If a patient is calling the customer service group to find out whether a certain item such as adult diapers are covered by the health plan, this becomes an opportunity to partner in developing deeper levels of "patient trust." For example, one patient advocacy group his firm works with asks why the person is inquiring about adult diapers and finds that in a large number of cases they are able to uncover that the patient or the patient's spouse has colon cancer. Thus, they are able to help. "Analytics based on old data can help, but real-time analytics such as this can be done in a combination of people and technology," Shaikh says.

5. Re-thinking the waiting room experience

Futurists see a wealth of opportunity to leverage tech tools to make the waiting room experience more efficient and effective for medical practices. "There are a lot of business technologies around scheduling, billing, and connecting with staff around your visit, and the special needs you may have around a visit," says Evenson, who believes many of those processes are ripe for re-invention. Doug Given, a physician and chief executive of Health2047, a Silicon Valley startup funded in part by the American Medical Association, agrees. Health2047 is exploring innovative solutions to the biggest challenges facing the nation's 1.1 million physicians. It has targeted systemic change revolving around practice workflow. "You can take the waiting room experience and turn it into a desirable consumer customer experience, involving something educational, motivational or behavioral, so this is time well spent," says Given. "You could have better logistical support of the scheduling during the course of the day. If the doctor gets involved in a difficult case and now everything is going to run an hour late for the day, you could communicate by text and other media
and treat the patient like the customer you really care about. Those things can all be automated. I think the doctor's office of the future can really benefit, particularly from the kind of customer relationship management software ... perfected in other parts of the economy."

West Monroe's Shaikh says some provider systems focus on being "digital," but envision the digitization only within their four walls, automating medication dispensing and transferring EHR records. "There is a much larger digital world to be cognizant of in the overall ecosystem that providers should start becoming more familiar with," he says, such as social media. One provider system executive he works with mentioned that the organization never had a "digital marketing officer" before, but is now looking to create and fill that position.

6. Personal health records

A recent survey from Wolters Kluwer Health found that 80 percent of patients want greater control over their own healthcare, but only 19 percent have access to a personal health record (PHRs). One effort that has garnered great enthusiasm is a movement called Open Notes that allows physicians and patients to chart their visits together and lets patients review their own health record. Despite the failures of early efforts by Microsoft and Google, many healthcare futurists expect PHRs to take off eventually.

With a well-designed PHR, you could have your entire health record embedded on your smartphone and completely portable, Givens says. "Imagine what that could do to quality of care and patient safety. I don't think ownership is the right principle for patients around their data, but access to their data in a portable manner — that is coming, that is going to happen."

In a recent study published in the *Journal of Medical Internet Research*, researchers from the John Hopkins University's Department of Health Policy and Management, the National Cancer Institute, and The Ohio State University predicted that adoption of PHRs would increase to the point where 75 percent of adults will use a PHR by 2020. "Personal health records (PHRs) offer a tremendous opportunity to generate consumer support in pursing the triple aim of reducing costs, increasing access, and improving care quality," the authors wrote. "Moreover, surveys in the U.S. indicate that consumers want Web-based access to their medical records. However, concerns that consumers' low health information literacy levels and physicians' resistance to sharing notes will limit PHRs' utility to a relatively small portion of the population have reduced both the product innovation and policy imperatives."

The next generation of EHR design

One chief complaint about today's health information technology is that EHRs are not user friendly or intuitive and that doctors spend too much time doing data entry to meet insurance and regulatory requirements. Among the solutions being introduced are speech recognition technology and services such as Augmedix's, which uses Google Glass and a remote scribe to allow doctors to eliminate the distraction of entering information into a patient's EHR on the computer. (Google Glass is an internet-connected headgear, which looks and feels like a pair of eyeglasses. A thumbnail-sized screen appears in the corner of the right eye of the device, which also has a camera and a microphone, allowing the physician to conduct hands-free data entry).

So looking 10 years into the future, will EHR design become more user friendly and have the interoperability long promised by the industry? Todd Evenson, chief operating officer of the Medical Group Management Association, says EHRs would have to evolve. "We can't continue to leverage physicians as data-entry personnel. They need to focus on the patient relationship," he says. "I know that people are working toward that, but until we master the process of ensuring the EHR is not just a data-entry vehicle and that we can leverage the data there to improve care for the patient, we have a long way to go."

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