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Doctors Go Digital

How Information Technology Is Changing American Health Care

Imagine that on a Thursday next February, you get your annual physical in the major northeast city you call home. Friday, you catch a plane for a Colorado ski trip. Unfortunately, by late Saturday afternoon you're in an emergency room staring at an x-ray of one of your legs after taking a bad fall on the slopes. Imagine now that your emergency room doctor has access not only to the x-ray and whatever personal

information you provided upon being admitted, but to your entire medical history, including the summary of the physical you had roughly 48 hours ago. This is possible because your primary care physician entered the data from your physical into an "electronic health record" (EHR), which the emergency room doctor is able to access via a nationwide digital network.

While the above scenario is today possible in only a few parts of the United States, and even there only to a limited extent, the Obama administration has dedicated approximately $27 billion, under the Health Information Technology for Economic and Clinical Health Act (HITECH), to making it a nationwide reality. Aside from the convenience promised to our upscale vacationer, advocates of EHRs and other emerging health information technologies argue that ushering health care providers firmly into the digital age will result in less expensive, more efficient, and more effective health care services for all. With that goal in mind, the bulk of the HITECH funding, which was passed as part of the 2009 "stimulus" bill, is slated to be used to incentivize Medicare and Medicaid providers to switch from traditional paper to electronic records over the next five years.

Under the HITECH programs, Medicare providers considered "eligible professionals" can qualify for up to $44,000 over five years, beginning in 2011, while Medicaid providers can receive up to $63,750 over six years. For most providers, the incentives will cover only a fraction of the necessary overall investment. A recent study published in *Health Affairs* determined, in looking at the cost of implementing an EHR system in 26 primary care practices in north Texas, that "an average five-physician practice [will have an] implementation cost [of] an estimated $162,000, with $85,500 in maintenance expenses during the first year." Policymakers hope, however, that providers will quickly realize the benefits of electronic records—in terms of both better care for their patients and more efficient management for their practices—and thus be willing to shoulder the larger, long-term cost.

To support providers who decide to take advantage of the HITECH incentives, $2 billion was reserved to enable the federal Department of Health and Human Services (HHS) to develop an array of research and technical support initiatives. Perhaps most important for the overall project are the "regional extension centers" that have been established to assist doctors and other health care providers with selecting and implementing EHRs in their practices. Sixty-two such centers were established in the months following the passage of the act, and to date nearly $700 million has been committed to the program.

Still other initiatives include the Beacon Communities Program, which has awarded several grants to health care providers across the country who have taken the lead in transitioning to new health information technology (IT); the Strategic Health IT Advanced Research Projects Program, through which grants have been awarded to

researchers working to solve specific technical impediments to EHR adoption; and a number of programs aimed at both developing health IT-specific college curricula and expanding the number of training or certificate programs available to prospective health IT workers.

Qualifying for the HITECH incentives, however, is not a simple process. For several months following the initial passage of the act, federal officials deliberated over the specific "meaningful use" requirements that providers must meet in using their new EHRs in order to qualify for incentive payments. These requirements are meant to ensure that providers are using the technology to become more efficient and effective, providing health care that is better and more affordable. Stage 1 of the requirements was finally released in July 2010, and while HHS had planned on releasing Stages 2 and 3 in 2013 and 2015, many providers have pointed out the complexity of the requirements, leading policymakers to consider deferring Stage 2 until 2014.

The final major piece of the federal government's efforts to promote the use of EHRs involves working with states and regions to expand the reach of new health IT so that patient information can be accessed far beyond the confines of a single practice or hospital. The goal is to develop the standards, services, and policies needed to form and sustain a nationwide network of "health information exchanges" so that patient information can be accessed anytime and anywhere. (These are not to be confused with the *insurance* exchanges that will be established under the health care reform law passed in 2010.) Ideally, access to a patient's medical history—including past procedures, lists of chronic conditions, and specific allergies—will enable physicians to provide a consistent quality and thoroughness of care regardless of where the patient is being treated.

As with EHRs themselves, however, developing health information exchanges is a complicated project with several intrinsic challenges. First and foremost, there is the challenge of interoperability: not surprisingly, there are many EHR programs on the market; perhaps even less surprisingly, they don't all "talk" to each other in a way that enables the smooth exchange of medical information. Through the State Health Information Exchange Cooperative Agreement Program developed under the HITECH umbrella, the federal government has awarded over $500 million to states, territories, and so-called "state-designated entities" with the aim of expanding the capacity of health care providers to exchange patient information both within individual states and anywhere across the country.

Supporters of federally funded health IT faced pushback from the new Republican majority in the House of Representatives in January 2011. Nearly three dozen Republican members of Congress cosponsored a bill that would reduce spending across a range of federal programs—including eliminating all of the money that the stimulus bill authorized for health IT.

The bill seems unlikely to pass, however, and even though fiscal conservatives continue to question whether the implementation of health IT merits taxpayer dollars, the overall effort does have a history of bipartisan support.

Regardless of how much the current political wrangling ultimately affects HITECH and other government efforts to promote EHRs, the digital transition is likely to continue one way or another. Even setting aside the rosy projections of the technology's most ardent supporters, there is a sound underlying logic to the idea that easier, more comprehensive access to patient health information will improve care. Clearly, for example, a doctor who can check an unconscious patient's list of medicinal allergies regardless of where the patient is being treated is better positioned to make a safe and effective prescription.

However, there are downsides to convenient digital access. Just as EHRs will enable doctors to view a patient's health information, they may also potentially expose that information to a long list of other parties, who may or may not have that patient's permission. Data security and patient privacy are both of paramount importance in implementing these technologies, but unfortunately both have a long way to go.

For instance, federal law requires health care providers and associated businesses to notify, among others, the Department of Health and Human Services when data breaches affecting more than five hundred individuals have occurred. According to a February 2011 report by the accounting firm Kaufman, Rossin & Co., in the first full year following the implementation of new federal security laws (from September 21, 2009 through September 21, 2010), some 166 such breaches were reported to HHS, involving the personal health information of 4.9 million patients.

Meanwhile, patient privacy advocates argue that federal policymakers have not done nearly enough to ensure adequate protection of patient privacy rights as the Obama administration promotes the digital transition. As Dr. Deborah Peel, founder of Patient Privacy Rights, put it in an online debate published by *The Economist*, "there are strong indications that the social benefits of EHR systems will be blunted unless comprehensive and meaningful privacy protections are built in up front."

But just as the transition to EHRs is likely to continue regardless of the federal government's specific role, concerns over privacy, which will probably never be entirely eliminated, are likely to be addressed over time with a combination of better technology, improved provider protocols, and more thorough regulation.

Apart from the politics, the policies, and the funding, there is a fundamental question we ought to be asking about the transition to EHRs that often gets neglected in debates about its logistics: How might an increasing reliance on information technology alter the doctor-patient relationship? In 2010, the Center for Studying Health System Change released the findings of a study, based on a series of interviews with

fifty-two physicians whose practices had been using the technology for at least two years, that looked specifically at how the introduction of EHRs and other new IT had affected how doctors and patients interact. The findings should give pause to policymakers and proponents of health IT alike.

To be sure, the interviewed doctors spoke enthusiastically about many of the benefits of EHRs. (Note that the report uses the term "electronic medical record," or EMR, which is technically different, but can be used interchangeably here.) They reported that "in general, immediate access to EMR data enabled them to focus on the patient rather than gathering information from a variety of paper sources during visits." In the words of one doctor, because "we do not have to call down the hall for a lab or test result, we spend more quality time [with the patient] in a more context-rich way." The doctors interviewed also believed that "ease of access to information also enriched patient education during visits," and use of the system to e-mail patients "'lowered communication barriers' and 'improved the quality of the relationship' by enhancing access between visits and reducing phone tag."

But the interviewees were also frank about the drawbacks of the new technology. Some doctors, who may already have a very short amount of time to spend with each patient, find the use of a computer to mediate their encounters to be a huge distraction. One prominent feature of many EHRs is an instant-messaging service that allows doctors to communicate by text with staff, during an examination and without leaving the room. Meant to allow doctors to focus on patients in one session rather than having to repeatedly leave and reenter the room, it also holds the potential to divert doctors' attention to people who are not even in the room. "There are a lot of gadgets and gizmos and that can pull us away from our objective," said one physician. Another added, "It's like having a two-year old in the room."

The format of the data stored by EHRs also seems prone to discourage the exchange of nuanced information doctors often need to make accurate diagnoses. EHR systems generally rely on checkboxes and other limiting formats that store data in ways that are readily encoded and searched. This means, most immediately, that doctors sometimes cannot enter information that does not fit into one of the checkboxes or spaces available on the system. This shortcoming will likely be fixed as the technology evolves, but in the meantime doctors may be inclined to overlook the nuance in symptoms that are more easily captured in narrative-style note-taking or dictation.

The fact that the technology allows so much data to be available to the physician before he even encounters the patient, and implicitly encourages the idea that there is little more to the patient *than* that data, seems to have instilled in some physicians a sense of scarcely needing to see their patients at all. One internist noted his concern that having so much information before

walking into the exam room causes doctors to listen less, even though the information is "not all trustworthy." Another doctor recounted a comment made by one of his colleagues at the hospital: "This is great, I used the EMR before I came here. I was able to sit down with my bagel and coffee and do my rounds before I even got in."

The transition to EHRs is just one of many forthcoming health IT changes expected to transform the traditional roles of doctors and patients. The so-called "Health 2.0" movement also encompasses other online and mobile information technologies; its boosters believe that a health system will work best when it provides patients with the greatest opportunity to control their own health information in order to guide their own care.

At the very outer edges of the health IT landscape, some technophiles have begun to speculate about a future in which new technologies will assume aspects of the role that has traditionally been played by a doctor, a nurse, or some other caregiver. One such advocate, Dr. Joseph Kvedar of the Center for Connected Health, is exploring with his team how so-called "computerized relational agents" might be substituted for at least some of the caregiving services currently provided by human beings. He wonders whether it will be possible to "set up systems that are extensions of our providers that will allow patients to feel cared for by their doctor but be interacting with a piece of software or a robot." While he agrees "that trust is critical for an effective relationship and that effective relationships with providers lead to improved care," he questions whether "these relationships have to be human-to-human or face-to-face."

To some, these ideas may seem far-fetched, not least because of the formidable technical hurdles involved. Moreover, to be fair, health IT "futurists" are not aiming for a system-wide substitution of machines for humans. That said, it seems reasonable to view both EHRs and more advanced automated care systems as sequential points along the same continuum toward technology-based, information-centered health care. Given this trajectory, even as they anticipate the myriad benefits of new health IT, beginning with the transition to EHRs, policymakers and providers should remain equally mindful of the potential pitfalls.

Patients are not checklists, and it seems safe to say that the information necessary to provide effective medical treatment will never be entirely reducible to the data sets that information technology is designed to gather, store, and analyze. More importantly, technology is simply unable to "care"; that's a job for humans. EHR technology holds the promise of significantly improving health outcomes while increasing efficiency in the practice of medicine. But technology is just a tool. For our health care system to remain humane, policymakers and providers will need to remember that.

—Jeffrey C. Rowe *is a writer living in Bowdoinham, Maine.*