

Playing Catch-up in Health Care Technology

The Benefits of Electronic Health Records and Interoperable Systems

Michael Sullivan

Never in the history of the health care industry has there been so much focused attention on the enormous challenges, changes, and opportunities that lie ahead in the next few years. Health care reform recently has taken the center stage to grab most of the headlines, yet the stimulus package and the passing of the American Recovery and Reinvestment Act (ARRA)/Health Information Technology for Economic and Clinical Health (HITECH) Act initiated new and invigorated interest in improving and accelerating the adoption and widespread usage of health care information technology (HIT) and electronic health records (EHRs) specifically.

For decades we have plodded along and invested significant portions of our HIT budgets in best-of-breed clinical technologies in order to have the best tools to heal and treat patients. Clinical systems technology historically has been a significant focus of our industry. The advancements in this area certainly have kept pace with other industries; however, the infrastructure of HIT lags years and sometimes decades behind those other industries.

Take, for example, the trucking and logistics industry. If we were to overlay the health care industry focus and spending approach on the IT side of the trucking industry, we would spend most of our resources building the most advanced trucks to transport goods and only spend a fraction of our resources on the systems and software used to plan shipping routes and track the vehicles and goods within them. The end result would be outstanding vehicles to transport goods with no way to effectively manage the overall shipping and transportation process. What is the point of having the best trucks if you cannot



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track where your shipments are and when they will arrive at their destination?

Industries such as banking, travel, e-commerce, and logistics have enjoyed amazing levels of automation and integration in their technology infrastructure that we in the health care industry should be envious of. Those industries have taken the time and invested the resources to plan their systems and infrastructure. They painted the picture of how they wanted their systems to look, function, and operate when they were built, and then they executed their plan.

The health care industry, on the other hand, consistently has taken a different approach. We historically have not been very good at planning for the end state and deciding what we want the systems to look like and how we would like them to function. Instead, we add bolt-on pieces of technology to our ever-increasingly patchworked and antiquated systems, we develop keen workarounds to keep our facilities and systems running, and we create elaborate processes to catch and deal with the problems that arise from our system design.

At this very moment, the health care industry is at a defining crossroads of that technology divide. Health care reform and recent legislation collectively have painted the picture for us of what that future state of technology is for our industry. The new model is one of improved health care with the most effective use of information technology and other management systems to support patient safety, reduce medical errors, improve care delivery outcomes, and improve care delivery efficiency through the widespread adoption and effective use of EHRs.

While EHR adoption is a key component of the future state of health care delivery, the key to our industry's advancement is the connectivity and interoperability of the systems. The ARRA stimulus bill outlines several "meaningful use" mandates that must be met to receive incentive payments. Perhaps the most critical of these mandates is interoperability. Simply stat-

ed, if a system's data elements and information cannot talk to other systems, then it is useless.

In some ways it is difficult to comprehend why there is so much passionate debate and resistance within the health care industry and in public opinion when it comes to EHRs and the connectivity of those records across a broader network of information exchange. Granted, our personal health information is sacred and the privacy of that information is paramount, but other industries with very sensitive information that requires extraordinary precautions have figured out the interoperability issues along with the privacy and security standards.

Take, for example, the banking industry. The sanctity of our personal financial information ranks right up there with the privacy and security of our personal health information, yet in most cases we don't even think about the infrastructure and the underlying information used to ensure the interoperability of systems in that industry. As consumers we have a primary relationship with our local bank. That is the branch where we signed up, shared our address, birth date, Social Security number, and countless other private details, but we did not establish that relationship with just that local branch. Without even considering it, we joined a global network of real-time financial information that has mastered the hurdles of interoperability.

To understand the comparison to the banking industry, simply consider for a moment the logistics involved with an overseas trip. We log onto a Web site and purchase a flight. We check into a hotel with a credit card. We swipe our cards in taxis, at restaurants, at museums, and in stores. As consumers we have been conditioned to expect that the financial systems will work seamlessly without thinking for a moment about the complexity involved to usher our personal financial information through vast information networks, and if the truth be told, we get

plenty upset when there are any hiccups in the process.

Our current level of integration and connectivity in health care is the equivalent of a “cash only” society. Could you imagine how different life would be for all of us if we could only get cash from our local bank branch or even from just our own bank’s network of automated teller machines (ATMs)?

Think for a moment how beautifully interoperability works in the financial industry — how that first meeting and deposit at your local bank somehow allows you to swipe a piece of plastic at a grocery store in Paris and walk away with a baguette and some brie is pretty amazing. That is precisely the level of interoperability that we need to achieve in the health care industry.

The good news is that what we are endeavoring to do is a bit easier than what other industries have faced in the past. We do not have to worry about real-time exchange rate calculations. We only have to worry about building the systems to effectively share electronic health information so that providers have real-time access to complete patient records.

Over the past few months our industry has been given a gift, and we now have the chance to decide how we can and how we should embrace this opportunity. The federal government has helped to elevate our narrow view of the trees to one in which we can see the whole health care information technology forest by outlining the meaningful use standards and by offering the national vision of interoperability of our health care information network; we’ve even been granted financial incentives to join this network.

While we have an amazing opportunity at hand, we are also confronted with some pretty significant challenges. If we judge ourselves honestly on our past history, we see that our industry has failed to capitalize on similar opportunities in the past. We must embrace this opportunity with a completely new and comprehensive approach to fully realize the potential benefits of fully networked health care information systems.

In the current environment of rising health care delivery costs and with the recent focus on health care reform, the federal government has given us the opportunity to close the technology gap, implement EHRs, and usher in the new age of technology for our industry. The end result of these efforts should be:

- improved clinical outcomes;
- more efficient clinical care delivery;
- prevention of medical errors;
- lower care delivery costs;
- increased administrative efficiencies;
- reduction of fraud, waste, and abuse; and
- improved patient experience.

Achieving just a fraction of those benefits would be enough justification to commit the time, effort, and resources to move our industry from its current state to one which boasts a robust and real-time health information exchange network. Achieving all of them would be a cause for celebration. The following sections explore some of these benefits in more detail and describe the reasons we should be excited to act now to adopt the truly connected electronic health systems.

IMPROVED CLINICAL OUTCOMES

For many reasons, health care historically has been one of the few industries where the measurement of success or failure has not been done according to strict metrics or scorecards. For decades we have tried to wrestle with the complex issues of how to measure clinical performance and to publish report cards of how well specific providers take care of their patients. Given the extreme number of variables, one of which is the lack of standard electronic information, it has been a substantial undertaking that has taxed the greatest minds in our industry.

Measuring clinical outcomes and providing consumers with information about their providers is impossible without an effective and interoperable health care information network. As our industry moves to refine its payment system to reward better clinical outcomes with higher payments, it

is critical that we have the means to effectively monitor and track outcomes across all of our health care providers.

Aggregating and sharing clinical outcomes and trends will provide the foundation for us to measure the effectiveness of treatment protocols for different diseases and conditions. This will allow us to compare different clinical practices and subsequently to modify treatment regimens to better care for patients and ultimately to produce better clinical outcomes. The information also will have public health benefits such as earlier detection of infectious disease outbreaks around the country.

MORE EFFICIENT CARE DELIVERY

Since the advent of the health care industry, providers have struggled with obtaining accurate and comprehensive patient information and history. Providers haven't had the tools that they need to effectively do their jobs. In health care we have a much different customer base than most other industries. Unless a visit is for routine maintenance or preventive purposes, our providers are faced with customers who are ill, scared, and worried. Relying on the patient then as the sole source of information is not the most effective way to gather the information required to make informed decisions.

If you were to be a fly on the wall in any health care provider's office around the country, you would be startled to observe and hear the degree to which providers rely on an individual patient's memory and expertise to learn about their illness and treatment history. Providers are forced to ask many questions to get the comprehensive picture of their patients' health status, and on top of that, the accuracy of the patients' recollection, information, and responses may be highly suspect.

Relying on the scared, worried, and sick is not the best method to gather this information. An effective health information network would allow providers to have updated, accurate, and comprehensive patient

information at the point of care and would allow physicians, nurses, and providers to make better, more informed decisions.

PREVENTION OF MEDICAL ERRORS

Perhaps the most important reason to justify the shift from paper medical records or disconnected electronic records to an interconnected system of electronic health information is the potential to vastly decrease the number of preventable medical errors in the health care industry. It has been widely known that paper medical records are one of the main contributing factors to medical errors that are made every day in our health care facilities. In most of our clinical care settings, we are relying on handwritten reports or notes, and we are performing manual order entry. Many of our clinicians are documenting with nonstandard abbreviations and very poor legibility in some cases. These are some of the factors that lead to substantial errors and injuries, according to the Institute of Medicine (2000) report.

Computerized provider order entry (CPOE) is another one of the criteria included in the meaningful use metrics of an EHR. Studies have shown that prescribing errors are the single largest source of preventable errors in hospitals. A 2006 report by the Institute of Medicine estimated that a hospitalized patient is exposed to a medication error each day of his or her stay.¹ It is estimated that CPOE can reduce total medication error rates by 80 percent and adverse (serious with harm to patient) errors by 55 percent.²

Investing in and properly implementing EHRs will help to significantly reduce errors that can be attributed to paper medical records and manual order entry. Our nation's clinical care delivery is highly regarded throughout the world as having some of the most effective and cutting edge solutions to our patients' ailments, yet we also have patients dying daily due to the lack of clinical information at the point of care. We can prevent many of those negative results with an effective health information exchange.

LOWER CARE DELIVERY COSTS

In the current health care environment, we do not need to look any further than our nightly news program or daily paper to understand that health care costs have risen precipitously over the past decade and are on a similar path for the coming years unless we do something drastic to reverse the trend. Point of care access to critical and complete health care information most likely will reduce duplicative and unnecessary tests and treatments, which range from simple and inexpensive lab work to substantial imaging tests that carry a much higher price tag.

The key element needed to reduce the care delivery costs is the presentation of the comprehensive medical information to the clinician at the point of care in an easy-to-access and readily available framework that does not delay or pose a barrier to the current episode of care. Unfortunately, when EHR implementations are not done well, in many cases providers have found that it is easier to order another test instead of trying to locate results of earlier ones. Our industry must develop partnerships between our clinical staff and our technology staff to ensure that the information required during a patient visit is easy to use in a very timely manner.

REDUCTION OF FRAUD, WASTE, AND ABUSE

While the hot topics of health care reform and the development of a widespread health information exchange seem to be a relatively new shift in our industry, the reality is that we have been building the foundation for these changes for well over a decade and a half. The development and implementation of the Health Insurance Portability and Accountability Act (HIPAA) was the first critical step in moving our health care system in this direction. First, we addressed the privacy issues of how individuals' protected health information can be used. Then we addressed the security of the systems and processes that protect that information. Finally, we mandated certain rules that required certain health care

transactions to be done electronically and defined the technology standards so that all systems would speak the same language.

These three pillars of HIPAA have allowed us in the industry and us as health care consumers to grow comfortable with the ideas of health care privacy and security and at the same time grow comfortable with the idea that it is okay to perform electronic transactions in health care with appropriately developed and controlled systems. So while HIPAA nudged us down the current path that we are on, we need to take that next big step to take advantage of the enormous financial and clinical possibilities associated with interoperable EHRs.

HIPAA and EHRs have streamlined the collection and aggregation of data that allows us to address the issues of fraud, waste, and abuse with a new vigor and innovative methods. In past years and decades it has been a monumental and laborious task to identify and address these issues given the volume of transactions that were paper based. Now, however, we are sitting with a vast warehouse of data at our fingertips instead of sitting on top of a mountain of paper.

Imagine if someone stood you in front of two different rooms. One room holds a table surrounded by giant stacks of 50,000 health care claims. The other room has a laptop with a spreadsheet showing those same claims and all of the corresponding data elements. Then the person asks you to choose one of the rooms and go find potential claim errors, wasteful practices, or fraud. Which would you choose?

The answer is, of course, very easy. With the terabytes of data we now have to probe, dissect, and evaluate we are finally empowered and well-equipped to identify fraud, waste, and abuse. Never before have we had such data mining power to do this type of work.

The federal government has already figured this out and is well along the way to using this information to do just that. Health care providers and facilities have the same opportunity, especially from a compliance and internal

auditing standpoint, to use that same type of electronic information to perform their own data mining and to proactively identify and remediate issues as they arise.

IMPROVED PATIENT EXPERIENCE

Aside from the administrative, cost, safety, and efficiency issues that would all see improvements from this new shift in health care technology and delivery, it is important to consider the overall impact on the patient and his or her clinical care experience. Having comprehensive and accurate health records available to clinical staff at the point of care delivery will reduce the number of repeated tests, which is a particularly welcome change in the case where tests are invasive.

In many cases, patient visits and procedures are canceled or significantly delayed as providers search for records or wait for test results or medical records from other providers or facilities. These situations will decrease, improving the patients' overall experience.

The end result from a patient's perspective should be better, quicker, and cheaper health care. Don't these sound like important goals we should strive toward for our customers?

PARTING THOUGHTS

Adopting and implementing these new systems and technologies requires a dedi-

cated effort by key stakeholders in every organization (including compliance professionals who are often overlooked in the process) since the impacts are widespread. Poor technology planning and installations can lead to serious clinical care and compliance issues while good ones can help to ensure improved care delivery and compliance controls.

The development of the meaningful use criteria and the overall vision of an interoperable health care system were not developed to change the fundamental way that clinical staff treat and care for their patients but rather to provide incentives to embrace and join what one day hopefully will be a national health care information network that is successful at stabilizing the rise in health care delivery costs, advancing patient care coordination, and improving care quality, all while reducing health care waste, fraud, and abuse and improving the patient experience.

Endnotes:

1. The Institute of Medicine (2006). "Preventing Medication Errors." The National Academies Press. www.nap.edu/catalog/11623.html. Retrieved 2006-07-21.
2. David W. Bates, MD, et al. (1998). "Effect of Computerized Physician Order Entry and a Team Intervention on Prevention of Serious Medication Errors." *JAMA* 280 (15): 1311-1316. doi:10.1001/jama.280.15.1311. PMID 9794308. jama.ama-assn.org/cgi/content/abstract/280/15/1311. Retrieved 2006-06-20.

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