HOW TO ACCELERATE ADOPTION OF ELECTRONIC HEALTH RECORDS

Build a thoughtful IT strategy that includes the EHR to enable growth
Leverage virtualization and cloud computing to reduce cost and increase IT flexibility
Use cloud computing to ease the move to electronic clinical processes required by ARRA and healthcare reform
BEYOND MEANINGFUL USE

Although Electronic Health Records (EHRs) are not new to the healthcare industry, it is now becoming clear that in order to achieve incentive payments under the American Recovery and Reinvestment Act of 2009 (ARRA)—specifically the HITECH Act—healthcare providers must adopt EHRs and achieve their “meaningful use.” Meaningful use is among the most important drivers of hospital IT investment today. How important? IDC Health Insights recently published a market forecast showing that while the growth of the overall U.S. healthcare IT spending is expected to be about five percent in 2010, spending growth on clinical technologies specified for meaningful use (EMR, CPOE, HIE, and analytics) is expected to be about 12 percent. More than 40 percent of providers, according to another recent IDC Health Insights study, will accelerate deployment of meaningful use technologies in 2010. In addition to meaningful use benefits, these technologies will enable healthcare IT executives to control costs and prepare to meet the demands of the Patient Protection and Affordable Care Act of 2010 (PPACA).

Healthcare providers are not just motivated to adopt the EHR by incentive payments. Based on research EMC conducted with clinicians and radiologists at the recent RSNA 2010 conference, most respondents indicated that incentives were the least critical motivators for EHR adoption. The primary motivators were ease of accessing patient records, security and privacy controls for electronic information, and the ability to share patient information across geographies and affiliations or a 360-degree view of the patient. “The EHR is the wave of the future,” says a radiologist at Nyack Hospital (Nyack, New York). “The benefits of using an EHR are obvious: it’s not just about government compensation, it’s about the ability to easily share critical patient information. We get a lot of hospital diversions in our area, and it would be nice to instantly look up the patient’s history electronically.”

EHR CURRENT STATE

With so much press surrounding EHR adoption, one would think that most relevant healthcare facilities would be fully adopted by now. Statistics from the HIMSS Analytics’ EMR Adoption Model (Sept. 2010; N=5217 for Q2 2010) show that of those polled, only 16 percent indicated that they had achieved advanced meaningful use with their EHRs. In fact, when people at RSNA 2010 were asked if they used an EHR, they stated, “Who doesn’t.” When digging a little deeper, however, interviewees seemed to be struggling with how to accelerate EHR adoption. For example, a nurse from Kettering Health Network in Dayton, Ohio, claims, “Right now, because not everyone is 100 percent integrated into our EHR, we have integration issues with some of the vendors’ systems we are still utilizing. The integration piece is a little difficult until we get through it. We get through it using a lot of trial and error and backup. That’s when the paperwork comes back into play. Our workaround is paper, and I think that we’ve used more paper in the past two weeks during our first live EHR session than we did in the month before having the EHR.”

EHR ISSUES ARE HARDCLY UNEXPECTED

A radiologist who uses an EHR system at Consulting Radiologists, LTD., Minneapolis, Minnesota, says the biggest challenge for EHR use is downtime. “If the server goes down, and it can be down for hours at a time, it can be really frustrating.”

Another challenge revolves around the need to test the applications that are to be connected to the EHR prior to their integration. “Don’t put new things in your EHR system that you haven’t tested first because that’s what we did and we were sorry,” says a nurse at Kettering Health. “We had it all tested and everything worked, and then we added 20 ER beds and 20 OR beds and that caused a problem for the whole integration. We’re not doing that anymore. We’ll make those changes after the fact. That was a learning experience.”

Training was also very critical to successful EHR adoption. “Training of your personnel is a downside to EHR implementation,” says a medical director at the Albuquerque VA Hospital. “Vendors should provide intense training for a week or two on how to use their EHR systems.”
A radiologist at Nyack Hospital says, “A significant benefit would be to optimize the EHR training. When a new EHR system is implemented, the entire hospital is going to change the way it works—at the same time.” The training must be coordinated throughout the facility for the EHR implementation to be successful.

A medical director at Progressive Diagnostic Imaging in Riverdale, New Jersey, states, “Coordination across different sites and dealing with the paper that you are still getting is a key challenge to EHR adoption.”

Since EHR systems are designed to supplement existing healthcare information systems rather than replace them, they will only be as useful as the range of systems which they connect. In addition, if the connection capability is absent, there are additional difficulties. The healthcare arena has gone through many cycles of best-in-class and single-source vendors, sometimes resulting in as many as hundreds of applications containing only a piece of a patient’s EMR (Electronic Medical Record) information, yet there is no single view because the various applications are not connected. As a result, clinicians have to log-in to multiple systems to gather the information themselves...or do without. For example, an IT engineer from the National Institute of Radiological Science, Japan, says, “In Japan it is difficult for the charge-over medical system to make the connection to the EHR. It’s a big challenge for our separate medical records systems to make a connection. Our doctors want one simple medical records system for the EHR, but it is difficult in Japan with separate systems. It’s also difficult to change medical records systems now. This is also a big challenge for medical records (system) makers in Japan now.”

**EMC SOLUTIONS FOR INFRASTRUCTURE OPTIMIZATION**

Many organizations are proactively managing integration issues and challenges with the incorporation of legacy systems by leveraging new technologies to optimize their IT infrastructures. Virtualization technology, including Virtual Desktop Infrastructure (VDI), provides proven cost savings and demonstrated improvements to the performance, availability, and security of healthcare provider applications—and is a key enabling technology for healthcare provider EHR systems. These organizations use virtualization in their data centers to make more efficient use of resources, improve availability, assist in security and disaster recovery measures, and centralize EHR support and administration.

“We were running out of processing capacity and space in our data center as we expanded our EMR infrastructure,” says Robbie Hall, Northern Hospital’s CIO. “With a private cloud based on virtualization, we’ve become significantly more efficient while supporting a wave of clinical initiatives that are helping us improve the quality of our patient care.” Also using hardware, such as EMC® storage hardware, Northern Hospital has saved hundreds of thousands of dollars by eliminating 20 servers and minimizing the maintenance of existing servers. In addition, the hospital has been able to lower power usage and network congestion. Northern Hospital plans to achieve 70 to 80 percent server virtualization within the next 12 months, leveraging technology from EMC. “Because we’re more efficient, our ratios of new application development versus technical support/maintenance resources have gone from 50-to-50 to 35-to-65,” Hall says. “As a result, we have more time for important IT projects that help streamline the delivery of patient care and enable better collaboration among our clinicians.”

Virtual Desktop Infrastructure is a variation of the client/server model where individualized desktops are maintained in a centralized data center, reducing the complexity of managing multiple applications running on numerous workstations and providing end-user support. Within the healthcare environment, VDI enables single sign-on (SSO) and the ability for a user session to follow clinicians as they move from device to device, thus streamlining secure access to critical health information by highly mobile clinicians. Since data is stored on centrally managed servers rather than on local devices, the risk of a security or privacy breach of protected health information as a result of a lost or stolen laptop, tablet, or other mobile device is essentially eliminated. With the EMC VDI Solution for Healthcare, medical
professionals will have access to virtual desktops at nursing stations and various devices to access clinical software such as EHR applications. VDI also provisions desktop images from the hospital’s central servers to help simplify IT maintenance and increase privacy and data security.

Understanding how to coordinate between sites and properly scoping the EHR implementation can only be accomplished if the provider organization understands its own process and IT process maturity. EMC Consulting can assess the maturity of your platform IT and provide insight and guidance on how EHR can shape your clinical and financial performance opportunities today and your ability to improve performance tomorrow. Our strategies and insight shape your ability to collaborate with patients, physicians, payers, and other partners, as well as to leverage resources outside your organization. Using these roadmaps, EMC can help you to build a platform that is modular and reconfigurable which enables you to accelerate the benefits of EHR adoption.

Figure 1. Real-world example of the EMC Provider EHR Maturity Model

Where healthcare organizations fail to possess a single, consolidated view of patient information (clinical and non-clinical), EMC can provide a platform that bridges the gap between disparate systems, enables regulated information to be managed via automated business rules, and effectively deals with paper. EMC calls this platform the ‘virtual repository for patient records’ (VPR) platform. A VPR platform makes all of a healthcare provider’s unmanaged information available to those who need it via whatever interface supports an organization’s processes. A VPR solution does not look to replace established systems. It is an adapter-based solution that complements and enhances industry-standard medical information systems that have limited interoperability.

The core technology of a VPR platform is enterprise content management. A VPR platform integrates traditional hard copy scanning and optical character recognition (OCR) techniques with electronic forms to streamline the capture of supporting documents such as medical history questionnaires, patient consent forms, regulatory acknowledgements, etc. It provides process services such as workflow and automated information lifecycle management. Such a platform also delivers powerful security capabilities that authenticate the origin of content and protect it from unauthorized access and modifications.

Document imaging for medical records transforms patient medical records from paper to indexed electronic data records and delivers them directly into the healthcare provider’s EHR system. Paper-based records may be scanned, recognized, and indexed to create digital images that can be linked to the patient’s online health records. Scanned records are then automatically classified according to document type using advanced document recognition technologies. Key data can be automatically extracted and validated utilizing OCR while
leveraging the hospital’s existing ADT system for patient matching and validation. The electronic files can then be linked to the EHR or alternative repositories, making them accessible simultaneously for online, secure use.

Although none of the interviewees mentioned security concerns for their medical information in an EHR, cybercrime for electronic information is on the rise. Having all of your patient information in one place unfortunately makes it easier for cybercriminals to gain access to healthcare data and other personal information. EHRs and healthcare portals contain massive amounts of personal information, including dates of birth and Social Security numbers, as well as sensitive information about medical diagnoses and treatments. And for those that enable payment of medical bills and other account management services online, there is also the prospect of gaining access to financial data.

EMC has expertise in information-centric security, enabling the protection of healthcare information throughout its lifecycle. In addition, security measures are needed to meet HIPAA access control requirements, to maintain Joint Commission (JCAHO) accreditation, and to meet EU Data Security requirements. EMC’s capabilities enable customers to cost-effectively secure critical information assets and online identities wherever they live and at every step of the way, and manage security information and events to ease the burden of such compliance. EMC offers industry-leading solutions in identity assurance and access control, encryption and key management, security information management, and fraud protection. These solutions bring trust to millions of user identities, the transactions that they perform, and the healthcare data that is generated.

THE WAY FORWARD

Although deployment of EHR systems may be phased in for certain groups or departments, ultimately they will touch everyone who is responsible for patient care. The adoption of an EHR system is integral in enhancing the quality of patient care. A radiologist from the Mayo Clinic says, “Using an EHR vastly increases the quality of care. When I’m interpreting a scan, I can provide much better interpretation if I have every bit of information that’s available about the patient.”

Even for the clinical researcher, the EHR improves patient care. A diagnostic radiologist from Minneapolis says, “The EHR improves research results because I get reliable data. And, I can correlate the information on a given study with previous studies. I have access to all the studies; I don’t have to go to the film library and do a lot of manual labor to track down data.”

Healthcare organizations at early stages of EHR deployment would be remiss if they ignored the lessons learned from their peers who are further ahead in this process regarding infrastructure optimization during EHR adoption. As previously described, tools such as virtualization and cloud computing will be required to support the deployment of clinical applications to highly mobile workers who are not bound by the walls of the hospital or clinic. The benefits that accrue from the construction of an IT platform and the thoughtful use of virtualization and cloud computing will include cost savings that help stretch IT resources and capabilities, productivity benefits for providers, and IT staff that will help ease the move to electronic clinical processes required by ARRA and healthcare reform. Last, because of these benefits, virtualization and cloud computing will help ease the challenges of EHR adoption, which will subsequently lead to better continuity of patient care.