Enterprise Imaging: Beyond Cloud-based Image Sharing


Enterprise imaging is a complex strategy for sharing images and collaborating with providers. Here's what you need to know about the impact of this emerging trend.

Source: Diagnostic Imaging

Zero-footprint viewers. Vendor-neutral archives. Image mobility. Individually, they are helpful tools to radiology and becoming more ubiquitous. But together, they help create a cohesive enterprise imaging strategy.

Enterprise imaging (EI) isn't a particularly new idea, but to date, it has been largely misunderstood, industry experts say. It's more than simply implementing new technology. And, achieving the full benefits EI can provide will require both sophisticated software and provider engagement.

"Enterprise imaging is a hot topic, but there's a big misconception around what we mean by it," said Paul Chang, MD, University of Chicago School of Medicine's enterprise imaging medical director. "Enterprise imaging is a much broader, more complex problem when you take the enterprise perspective rather than the silo perspective."

What is EI?

Put simply, the goal of an EI strategy is to ensure the correct image is delivered to the right place at the appropriate time. It has the potential to fundamentally change how facilities, providers, and patients interact with diagnostic images. Reaching that goal, however, requires a great deal of collaboration, Chang said.

According to a 2012 KLAS report, many facilities are already moving in that direction. Of the 134 providers surveyed, most reported being in early EI stages. To create a fully integrated EI system, Chang said, these facilities and others must address five factors that affect how the healthcare system currently views and uses diagnostic images.

1. Archive architecture. For many providers, EI simply means implementing a vendor neutral archive (VNA), an archive-neutral vendor, or using a zero-footprint viewer, all methods for easily sharing images within the facility and off-site. However, the archive is only one part of a successful EI strategy, albeit an important component. It's important, Chang said, to free radiology departments and practices from being tethered to one PACS, but identifying and employing an effective VNA is largely an IT responsibility.

"VNAs and zero-footprint viewers are just the middle wear that links commodity storage to the application layer," he said. "We'll do it, and we'll go to the cloud. But it's all buzzwords and plumbing. That's designing the car. Now radiologists have to learn how to drive it."

2. Multiple creators and consumers. Radiologists are no longer the only specialty that produces and uses diagnostic images. Today, cardiology, gastroenterology, pathology, and several other departments rely on imaging to provide proper patient care, so facilities must have a streamlined way to distribute scans throughout the health system.

"To do this right, you do need the architecture of a VNA or archive-neutral vendor, but there's a bigger concept behind enterprise imaging," Chang said. "This view is the realization of the modern enterprise that it must deal with both consumers and producers of images simultaneously throughout the hospital — not just radiology."

3. Ubiquitous electronic health records (EHR). The concept of an EHR isn't new to radiology, an industry that has used PACS and RIS for many years. But now, meaningful use requirements are
calling upon the specialty to interface seamlessly with patients' records through an entire health system. Consequently, according to KLAS imaging research director Ben Brown, all new systems must be interoperable. It will be up to a facility's IT department, Brown said, to create an infrastructure that manages and stores PACS, maintain a patient index to ensure proper patient identification, and determine how long images are stored.

4. The enterprise concept. Years ago, when radiologists discussed "the enterprise," the term referred to anyone outside the department who still worked within the hospital's firewall. But as health systems have expanded and more specialties have become image producers and consumers, the definition of "enterprise" has expanded, Chang said. Radiology groups have consolidated, many facilities within the same system are separated by hundreds of miles, and providers are now required to read scans for multiple hospitals.

The logistics of moving images from one facility to another aren't difficult — the real challenge comes in coordinating the workflow needed to properly use transferred scans. According to Rasu Shrestha, MD, MBA, a University of Pittsburgh Medical Center radiologist, however, the potential exists, for EI to have a significant positive impact on workflow management.

"[EI] allows for a patient-centric approach to care versus an image- or application-centric approach," he wrote in a 2012 Applied Radiology article. "It allows for the possibility of true collaboration among care teams, which would bring the value of imagers back into the spotlight."

5. Tying it all together. The real challenge behind effective EI, Chang said, is to fuse the needed technology with the proper workflow perspectives. But it can be helpful, he said, to consider that EI is less about imaging and more about radiology's need to re-invent itself as healthcare enters a new chapter of value-based purchasing.

"The concept of enterprise imaging is a proxy or code word for having to re-engineer a more useful, comprehensive workflow solution for a more complex enterprise," he said. "It's better not to talk about enterprise imaging but talk about re-engineering ourselves so we can continue to add value."

How can you plan?

It's no longer a question of whether EI is right for your practice or department. Radiology's move toward EI is clear, and it's up to you to determine how you will navigate these new waters. There are many moving parts with this imaging strategy, Chang said, but you can outline your course of action by remembering one question: "What is the role of radiology or the radiologist in this decision?"

For example, as the end-user, you can — and should —tell your IT department what you need out of a VNA, but don't expect to be included in any purchasing decisions. The facility's chief financial officer and chief information officer will make that determination, he said.

You will, however, have a greater role — alongside cardiologists and other providers — in determining how the VNA architecture will support your needs and workflow. In addition, you must make it clear to your hospital administrators and IT department that any EI system must offer interoperability for the strategy to succeed, said Robert Barr, MD, president of Mecklenburg Radiology Associates in Charlotte, N.C.

Through interoperability, he said, his practice — which has been using EI for several years — is able to quickly migrate images between all subspecialties, streamlining patient care and facilitating greater access to patient records.

Your biggest role, however, will be in providing evidence that supports the true value you bring to your facility. Your worth is no longer tied solely to the number of interpretations you produce daily, Chang said. You must now demonstrate your impact on patient outcomes, population management, and down-stream resource utilization and cost control.

"In the fee-for-service environment, we could be selfish and insular in our thinking. We floated everyone else's boat," he said. "But now we're a cost center, and every CT you order better be worth

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it. Justify it, and demonstrate its positive impact.

**Future impact**

As industry adoption of enterprise imaging moves forward, a practice's or department's success in implementing the strategy will likely determine their future feasibility, Chang said.

"For the first time in radiology, we will have winners and losers," he said. "With this new healthcare model, competition will be fierce, and some practices will lose contracts. An integrated approach to enterprise imaging is critical to gaining market share."

At the same time you're fighting for patient volume, the industry as a whole will continue its shift from being a revenue center to a cost center. Under healthcare's new value-based purchasing approach, you'll have to provide justification for all scans you order.

"In five years, we'll see a completely different definition of vendors. We won't see traditional modality vendors," Chang said. "No one will be making money off of selling scanners."

Instead, to stay afloat, vendors will likely adapt to these changes and offer more professional services, helping you create the evidence and business analytics you need to support your activities.

"Industry is ripe for change when it's fat, happy, and a little worried. And, we're a lot worried," Chang said. "Those who understand what the future holds and are willing to reinvent themselves will win. The survivors will change themselves and drastically reinvent themselves as innovators who are engaged in their facilities and can think beyond the need to generate revenue."

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