Part I: What's The Biggest Challenge In Medical Imaging?

When Healthcare Technology Online staff members met with vendor executives at this year's SIIM (Society of Imaging Informatics in Medicine) Annual Meeting, the first question we asked was "What's the biggest medical imaging challenge facing healthcare facilities today?" This seemed logical as the technology solutions and implementation best practices highlighted at the show should be geared toward solving these problems or, at the very least, alleviating them. For the most part, responses to this question fell into three overarching categories — the challenge of managing increasing amounts of medical imaging data, the challenge to respond to new financial pressures through increased productivity, and the challenge of making medical imaging silos interoperate effectively with other enterprise systems. The following are the executive quotes captured at SIIM 2010 that illustrated these challenges most eloquently.

CHALLENGE 1: MANAGING THE MEDICAL IMAGE DATA EXPLOSION

"The biggest challenge is that there has been an explosion in the amount of imaging data that needs to be stored and managed today. Prior to the mid-'90s most of the scanning was two slices. All imaging was primarily 2D and 3D imaging was only a nice to have application. Now 3D visualization is a must-have application and a primary diagnostic tool. This has had a significant impact on the medical imaging industry. For example, if you took a head and neck scan in 1994, it was about 21 slices. Today, a single head and neck scan is 240-slices. Also, if you take the 40 CTA Perfusion that's 19 phases at 320 images per phase — that's 6,400 images. You cannot diagnose a 4,000, 5,000, or 10,000-slice image data set using 2D technology, and traditional PACS systems are not built to support these large data sets."

Vikram Simha,
CTO, Vital Images, Inc.

"There is now a huge amount of imaging data. The amount of data has tripled and quadrupled over the past few years and this is not going to stop. Think about the data that business fields like pathology, for example, the amount of data there is unbelievable. That's a huge challenge. So, you need to make up your mind — am I going to keep all the data in the hospital or am I going to throw some data out? In the old days it was film — you have 10% of film that was lost and nobody said anything. Now, everybody wants to keep everything. Another challenge is who

owns that data in the hospital? There is always a little bit of tension going on between the IT department and radiology and cardiology. In the past, the radiology and cardiology departments owned all the data themselves, they handled the data, and the IT department was out. Today, you need more collaboration."

Kurt Reiff,
VP Image/Knowledge Management, Siemens

"Honestly, I think it is managing their imaging data. The amount of storage and archiving that some large hospitals are doing is 100 to 200 terabytes of data. The problem is that this is often stored in proprietary archives and file formats. When you do that, you really don't own your data. Your PACS vendor owns your data. If you want to change to another vendor, it's almost like you have to ask permission to get your data out. Plus, it costs you a tremendous amount of money to move that data. If that's the case, then why would you want to take 100 terabytes of data and move it to another PACS when 7 years from now, you're going to have 300 terabytes of data and migrate it to another PACS vendor?"

Douglas Schwab,
VP & GM, Americas, Mach 7

"Medical image data is growing at unprecedented levels. A lot of hospitals were taken by surprise by this. When they put in their PACS systems, they never planned on the storage accumulating at the levels it has. They didn't expect the adoption of more modalities, they didn't expect multi-slice scanners, and they didn't expect storage to be growing 20% to 40% a year compounded. All of this has a profound, pressurizing effect on the way you manage the information."

Ken Rubin,
executive VP and GM for healthcare, Iron Mountain

CHALLENGE 2: FINANCIAL/PRODUCTIVITY PRESSURES

"I think the ultimate challenge healthcare organizations are facing when it comes to medical imaging is responding to the financial realities that exist during these transitional times. Most of these institutions have been looking at imaging in general — including radiology, cardiology, and other imaging modalities — as a means to drive more business into the

hospital. Imaging has traditionally been a revenue generator. The problems these facilities currently face is that they have to focus on other things in order to rewire themselves for the future — initiatives prompted by meaningful use or healthcare reform, for example. At the same time, they face a huge capacity challenge. That's a completely different problem than I need a better camera to take better images."

Patrick Gardner,
director of product management, McKesson

"Currently, I think hospitals face a lot of pressure to spend a bunch of money in places other than the medical imaging department as a result of all the new government initiatives. Obviously, there are incentives to enhance imaging systems and integrate them with other HIT applications. However, smaller facilities don't have the budget or bandwidth to do everything, and medical imaging is not being given priority status — EHR and other HIM implementations are."

Paul Shumway,
VP of operations and marketing, NovaRad

"New ACR [American College of Radiology] guidelines emphasize the appropriate use of medical imaging data and studies, which often translates to decreased utilization of these tools. This creates a potential conflict for radiology groups that are traditionally incentivized based on volume. These groups are challenged to comply with these guidelines without losing revenue."

Robert Fleming,
senior product manager, Nuance

"Dealing with the increasing volume of flat revenues is a huge challenge in the medical imaging space at a high level. Becoming more productive and doing the same or more with fewer resources is a battle radiologists, cardiologists, and everybody else in the medical imaging delivery and value chain are currently fighting."

Fred Behlen,
president, Laitek

"Today's radiologist faces the challenge of how to be more productive. At the same time, they need to be able to be compliant with documentation while trying to push through more studies in order to meet the demands of a modern radiological practice. Furthermore, radiologists need to be able to improve quality and processes — whether it's patient safety or compliance with things like meaningful use. So, they not only need to be productive, they also need to satisfy the increasingly diverse compliance and quality requirements that are being forced upon them."

Taras Silecky,
senior VP of strategic business development, M*Modal

CHALLENGE 3: INTEROPERABILITY

"Medical imaging environments are made up of several different silos of data. There are often multiple RIS and PACS systems in addition to other data silos. Each silo has it's own capacity management, it's own backup, and it's own archiving. There is also the challenge associated with the complexity of effectively connecting these image silos to the patient record. You need to deal with sharing this information with external PACS systems and other applications. This sharing of patient information among healthcare facilities is an increasing challenge as healthcare facilities evolve toward healthcare systems and regionalization because PACS and DICOM data have historically been proprietary in nature. All of this creates a huge storage management challenge."

Ken Rubin,
executive VP and GM for healthcare, Iron Mountain

"I think healthcare facilities face a big challenge when it comes to ensuring the continuity of medical imaging data over the long haul. For example, we're starting to see some hospitals divorcing, large hospitals merging with smaller hospitals, and other hospitals acquiring imaging centers. In each of these instances, disparate systems must be integrated into a single environment. How do you maintain and ensure the continuity of data throughout these transitions?"

Larry Ranahan,
VP of Business Development, Laitek

OTHER CHALLENGES

"The medical imaging industry faces several challenges when it comes to reporting. Oftentimes radiological reports lack detail. For example, a vague reason such as 'pain,' may be listed as the reason why a specific imaging procedure was conducted. This lack of detail often requires the radiologist or another staff member to re-enter key data into the report."

Jonathan Dreyer,
marketing manager/radiology, Nuance

"Hospitals have traditionally under-invested in disaster recovery. Also, it is seldom that you see a written disaster recovery plan. There's a HIPAA requirement to have a plan, but you don't see hospitals putting the money toward it. This can pose a huge problem and challenge for healthcare facilities because they don't have a plan that separates and protects their medical imaging data from a potential disaster."

Ken Rubin,
executive VP and GM for healthcare, Iron Mountain

"Administration is another key medical imaging challenge. For example, if a healthcare facility invests in a

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PACS, RIS, or another application, it needs internal employees to maintain the system from an IT perspective — someone that can fix something if it breaks without always calling the help desk. This is a challenge because good administration can be hard to find. You can have an average system with good administration and make it work. But, even the best system in the world will fail if you have poor administration."

Kurt Reiff,
VP Image/Knowledge Management, Siemens