



PACS and EMR Share a Future

BY JIM KNAUB

Someday, PACS images and RIS data will merge cleanly in a patient's electronic medical record (EMR), which will be widely available to clinicians who need access to the information.

The idea that PACS images would eventually integrate into EMRs has long been in the minds of system developers. How can you have a complete medical record without diagnostic images? But only recently has the integration idea really sunk in with radiology and hospital management—perhaps because of the generally slow spread of EMR. But the situation is changing.

"PACS as well as general healthcare products are becoming more IT [information technology]-centric," said Ed Heere, president and CEO of CoActiv

Medical Business Solutions. "The growth in both the size of the medical records and the need to move them from anywhere to anywhere instantly is growing exponentially."

Precisely when this will happen is a difficult question to answer. But there's little doubt it will happen. In terms of capability, PACS images are actually somewhat ahead of the rest of healthcare because the DICOM standards already in place facilitate sharing of images.

EMR STANDARDS

"It's standard data," Heere said. "Once you have that, storing and moving it is pretty straightforward. When they get the medical record data structure standardized, the same thing will

happen for EMR."

CoActiv is a second-year PACS company and an affiliate of AMSYS, INC., a company that has been providing data storage and other IT services for more than 18 years. It's one of a cadre of new PACS companies providing Web-based storage and archiving.

Heere says that one key factor in the blending of PACS and EMR will be the breakdown of the pattern on online, nearline, and offline storage. As EMR use expands, users will expect more immediate access to information. Heere believes that will squeeze out offline and so-called nearline approaches as primary storage.

"We don't require prefetching. All studies are available online," Heere said. "Customers don't want to wait for images to be preloaded." CoActiv's approach uses a short-term server at the imaging facility and puts copies of the images in each of two separate online storage facilities connected via high-speed Internet. The archiving process also creates two DVD backups: One is sent back to the facility and the other is archived in another location.

The end result makes images immediately available online until the facility decides to purge them. The setup replaces the nearline storage jukeboxes used with some PACS systems—a step toward more rapid online access.

ONLINE STORAGE

Switching a higher percentage of image archiving to hard disks (or RAID, which stands for redundant array of independent disks) has become economically feasible as hard drive costs drop. Heere expects the falling cost of storage to offset the increased demand for storage as facilities deal with more and larger studies. As long as those trends hold, the speed and convenience of online storage will likely be affordable for modest-sized organizations. Such facilities, Heere

observed, comprise most of the 80% of the hospitals and imaging centers that have not yet converted to PACS.

Accepted standards and convenient access allow for wider use of digital images, which is also held as a key benefit of electronic records. For example, Meridian Technique Ltd.'s OrthoView templating software helps orthopedic surgeons plan joint replacement surgery by combining PACS images with templates for artificial knees, hips, and shoulders. The system facilitates a sort of fusion imaging using PACS images and replacement joint templates to help identify the best-fitting device. CoActiv recently joined the ranks of PACS vendors that have integrated with the OrthoView system, a group that includes Amicas, eRAD/Image Medical, Fujifilm Medical Systems, GE Healthcare, Kodak Medical Systems, Stentor, StorComm, and Swissray.

"As all medical records make the move to digital, CoActiv can now merge diagnostic exams with surgical planning templates from OrthoView and store them as part of the original exam that can be easily integrated with a patient's full medical record," Heere said.

Last month, a *Radiology Today* article noted that the term PACS is rarely used at the University of Pittsburgh Medical Center. According to Paul Chang, MD, the director of radiology informatics there, the technology formerly known as PACS is now known as the "multimedia component of the electronic record." It's another example supporting the idea that PACS's future will extend beyond RIS integration and fold into a larger EMR. The "multimedia component of the electronic record" may never become the term of art, but it shows the move toward integration.

While Heere certainly wants many facilities to use his company's product, CoActiv is far from the only company offering Web-enabled PACS with an eye toward the larger mission of the EMR. Many newer PACS en-

trants are using modular approaches similar to CoActiv's.

The pioneer PACS vendors are also adjusting their products accordingly. The large healthcare IT companies are working in this direction as well. As the EMR standards take shape, they will migrate their systems to the new standards.

For hospitals and facilities considering their first PACS, it makes good sense to look at the acquisition in light of where PACS is headed, not just what you need to get into the PACS game. The approach CoActiv and similar-minded companies are using also makes sense for hospitals and imaging centers considering their second-generation systems.

"We realized," Heere said, "partially from our own knowledge of the healthcare field, that eventually everything is going to be archived. We designed our system up front to accommodate that. We are prepared to charge forward with electronic medical records as they move forward."

— Jim Knaub is editor of
Radiology Today.