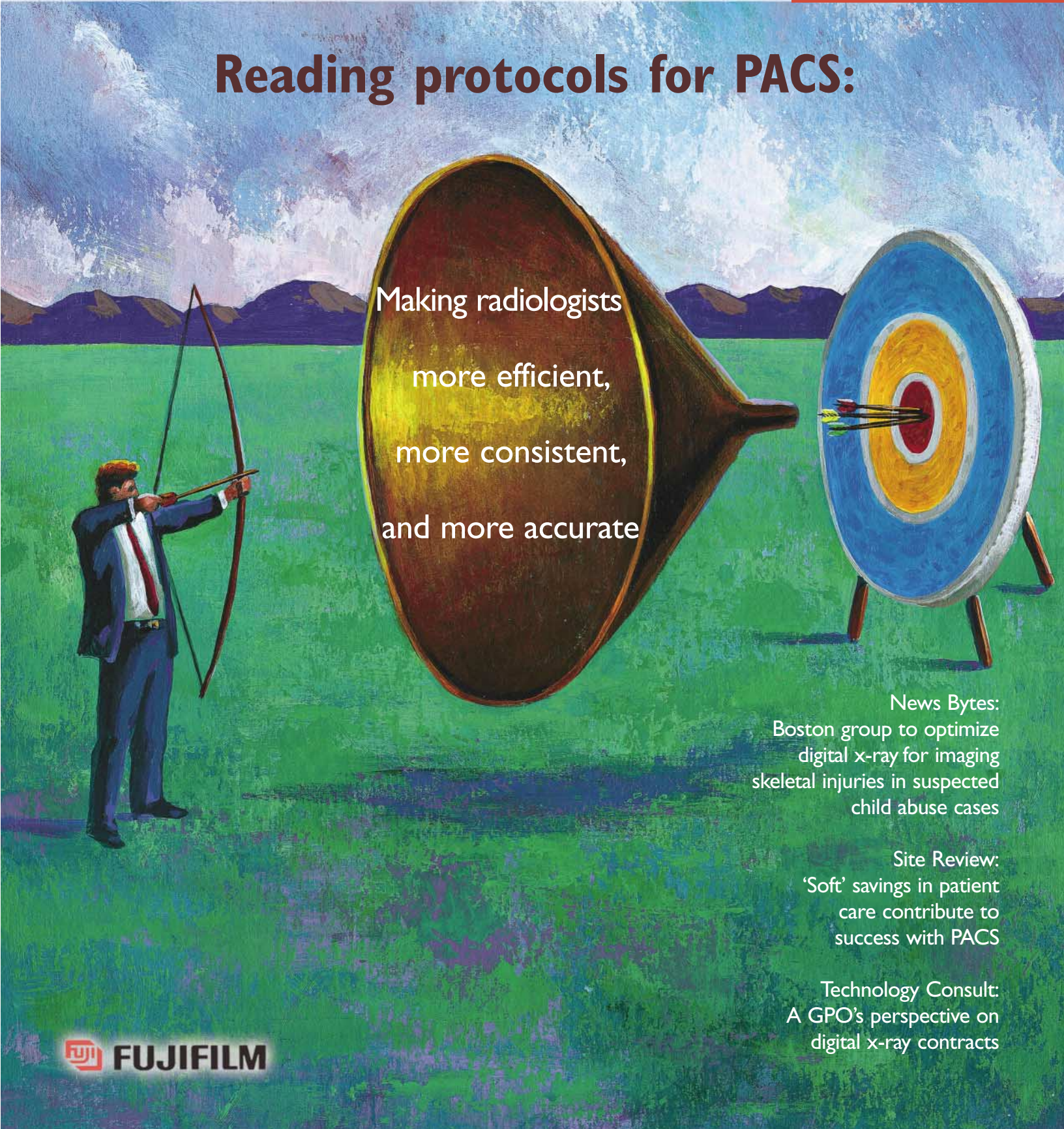


Reading protocols for PACS:



Making radiologists
more efficient,
more consistent,
and more accurate

News Bytes:
Boston group to optimize
digital x-ray for imaging
skeletal injuries in suspected
child abuse cases

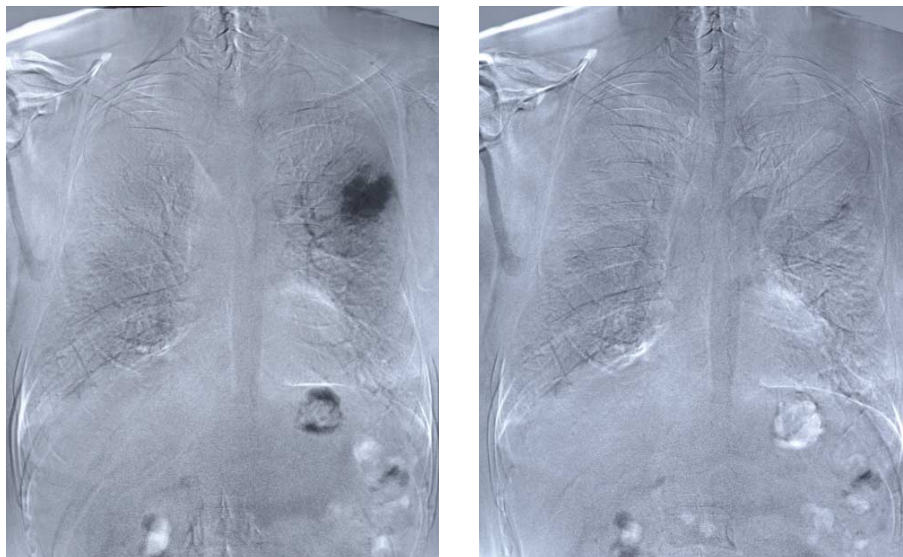
Site Review:
'Soft' savings in patient
care contribute to
success with PACS

Technology Consult:
A GPO's perspective on
digital x-ray contracts

image showcase

Temporal Subtraction

Temporal Subtraction is a sophisticated algorithm which subtracts differences between digital images recorded at different periods of time. The subtracted images allow for differences in patient positioning and often highlight changes in pathology which may have occurred between the times that the images were obtained.



*works-in-progress

quote unquote

"We will some day enter an era of ubiquitous computing in healthcare consisting of an interconnected array of computers throughout the enterprise. Computing will be to us then what electricity is to us now."

— Dr. Bruce Reiner, speaking at the annual meeting of the Society for Computer Applications in Radiology. Reiner is director of radiology research at the VA Maryland Health Care System and past president of SCAR.

Do you have an interesting image to share with *Insights & Images*? If so, please submit the image with a brief explanation to *Insights & Images*, FUJIFILM Medical Systems USA, Inc., 419 West Ave., Stamford, CT 06902. If your image is selected for publication, Fuji will send you a free digital camera! Please obscure or remove all patient identification information.

Obvious winner emerges at SCAR in the endless CR vs. DR debate

So what will it be: CR or DR? Based on both the facts and the opinions offered at this past meeting of the Society for Computer Applications in Radiology (SCAR), CR remains the front-runner for replacing film-screen radiography. DR has its proponents, and there are circumstances in which it appears to be superior. Radiology professionals are fortunate to have contesting technologies to replace film-screen radiography, given how both CR and DR continuously improve.

If one had to declare a winner in the CR vs. DR debate conducted at the SCAR meeting last May, however, there is not much room for argument. For now and likely for some time to come, CR offers a notable cost-benefit advantage. While one of the panelists in the debate objected to the hyperbole of the presentations made by industry executives, and offered a "spin-free" analysis, another simply admitted that he was smitten by CR. "Everyone needs CR," he blurted out. For those keeping score, the PowerPoint slides of the expert panelists showed more pluses for CR than DR.

Vendors of direct digital radiography systems sometimes make claims for DR's productivity and economic benefits that cannot be substantiated. There is a dearth of data in the scientific literature that would support positions where it appears strongest: patient throughput and image quality. Perhaps in time that data will materialize. Meanwhile, economic analysis from a multicenter study presented at SCAR showed a favorable annual cost differential in favor of CR. So far, it is only in very high volume practices that the productivity gains inherent to DR can offset its higher service and equipment costs.

There are also productivity gains to be realized at sites where CR is already in operation. CR affords such an improvement in workflow over conventional x-ray that many users stop short of pushing their systems to capacity. One speaker at the SCAR meeting noted that unused CR capacity measured in his study ranged from 64% to 76%. As this unrealized capacity is eventually captured, economic analyses of digital x-ray technology could extend CR's advantage.

With at least 10 CR installations in the U.S. for every one DR, it will be a while before meaningful data is available that makes a rigorous comparison possible. Until then, pay attention to the unguarded comments of people who have worked with both technologies, and whose reputations you trust. CR and DR are likely to coexist for a very long time, and there is much to be learned about each that can benefit the practice of radiology. ■



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Boston group to optimize CR for imaging skeletal injuries in suspected child abuse cases

The imaging of skeletal injuries caused by child abuse is one of the most demanding applications of radiography, but one that could become more precise with advances in computed radiography technology.

Children's Hospital Boston has signed a two-year research agreement with Fujifilm Medical Systems to optimize CR for pediatric imaging, including skeletal studies of infants who have been harmed. The researchers are using the Fuji 5000 MA*, a cassette-based digital x-ray system with Fuji's patented dual-side reading technology.

"Fractures due to child abuse pose significant challenges for the radiologist," said Dr. Paul Kleinman, the study's chief investigator. "Many screen-film systems do not adequately display these subtle indicators of inflicted injury."

Kleinman's study will explore whether the 5000 MA with its 50-micron resolution, combined with advanced digital imaging processing, makes these fractures more apparent than existing imaging systems. The spatial resolution of CR cassettes with standard single-side reading is 100 microns.

Digital x-ray is rapidly replacing screen-film technology in pediatric imaging. In a survey completed in 2003, it was found that 56% of pediatric healthcare facilities employed digital imaging for skeletal surveys of infants—the exam most commonly used to look for evidence of child abuse, Kleinman noted. This use of digital technology was predicted to have grown to almost 80% by mid-2004.

Kleinman has been involved for several years in helping to identify appropriate technologies for imaging suspected child abuse cases. The American College of Radiology and the American Academy of Pediatrics have formulated recommendations pertaining to abuse partly on the basis of his research. It was this commitment to advancing the quality of pediatric care that prompted him to take a close look at the Fuji's latest CR technology.

"We hope our research will provide us with an alternative to the current system," he said. "We would like something that has sufficient spatial resolution to detect subtle fractures, but that also allows us to lower the dose, and maintain acceptable image quality, in less rigorous applications."

Subtle but highly significant findings can be missed in skeletal surveys in which the digital imaging technology and/or the imaging technique have not been optimized. The requirements for imaging fractures in infants are roughly comparable to mammography, Kleinman said. The digital technology used in mammography is now on par with screen-film methods, he noted.

While bone has very different radiographic characteristics than breast tissue, they both contain relatively high-contrast structures that make them suitable to digital imaging enhancement.

"If we look at what's happening in mammography, we may gain some insight into what is required to achieve comparable diagnostic accuracy with our skeletal surveys," Kleinman said.

Fuji's dual-sided reading technology already provides excellent results in other applications, most notably in chest imaging, said John Strauss, Fuji's director of marketing for imaging systems.

"We believe that when applied to pediatric imaging, the same technology will allow a notable reduction in dose while maintaining the highest level of diagnostic content



A fracture may be the only indication that a child has sustained an injury from abuse, according to pediatric radiologist Dr. Paul Kleinman. Some of the most subtle fractures he sees are the ones that have the highest specificity for child abuse.

and image quality," Strauss said. "This is of particular importance in neonatal care, where there is (sometimes) the need for frequent x-ray exams."

The radiology staff at Children's Hospital Boston, led by Keith Strauss and Linda Poznauskis, is striving to achieve

*The 5000 MA is currently not available for sale in the U.S.

image quality with CR that is comparable to film-screen systems at the least dose possible (see the Summer/Fall 2004 issue of *Insights & Images*). Because of the higher DQE and signal-to-noise ratio of dual-sided imaging plates, Kleinman believes his team may be able to achieve some dose reduction with CR while preserving and possibly even improving image quality.

The Boston radiologist also believes that the contrast resolution available with storage phosphor technology minimizes the importance of matching screen-film's spatial resolution of 14 line pairs per millimeter.

"It's clear that we can operate at a substantially lower resolution and enhance contrast with postprocessing to delineate pathology," Kleinman said. "We do not need that level of spatial resolution (14 lp/mm) to achieve similar diagnostic accuracy because of the electronic nature of the medium."

In skeletal surveys, it is important that fractures be differentiated from other findings that can simulate fractures. In a suboptimal image, a developmental variant in bone can be misconstrued as a fracture. In general, fractures are exceedingly important findings, Kleinman said. There is less likely to be external evidence of injury—such as bruising—in infants who have been abused. Fractures attributable to abuse become less common in older children.

"The fracture may be the only indication that the child has sustained injury, and some of the most subtle fractures that we see are the ones that have the highest specificity for abuse," he said.

A child who has been abused can only be protected or removed from a hazardous environment when there is sufficient evidence to indicate that a child is at risk. In many instances, findings from a film-screen skeletal survey are the primary evidence upon which a diagnosis can be made, Kleinman said.

He is concerned that much of the technology being used in possible child abuse cases is insufficient for the rigorous demands placed upon it. Radiologists should aim higher, he said.

"I'm optimistic that the diagnostic performance of the digital systems will ultimately be sufficient, particularly in light of their post-processing capabilities," Kleinman said. "In many respects, this is an ideal technology for this particular problem." ■

Meditech-Fuji collaboration improves clinical outcomes

Sierra View District Hospital in Porterville, CA, is the first site to integrate Fuji's Synapse PACS with the electronic medical record of Meditech, providing users with instant and immediate access to a comprehensive array of patient care documentation and clinical procedures.

Physicians and other healthcare workers throughout the Sierra View enterprise not only benefit from easy access to lab results, vital signs, medication information, and other data, but also to radiographic information, including images and reports. Thus equipped, users are able to make more informed diagnostic assessments for better patient care.

"Access to each patient's complete diagnostic record is critical to our patient care cycle," said Dr. Thomas Maclennan, Chief of Radiology at Sierra View. "Meditech and Fuji recognized the value of this integration by creating a unified portal of patient information. They are committed to see it through for us."

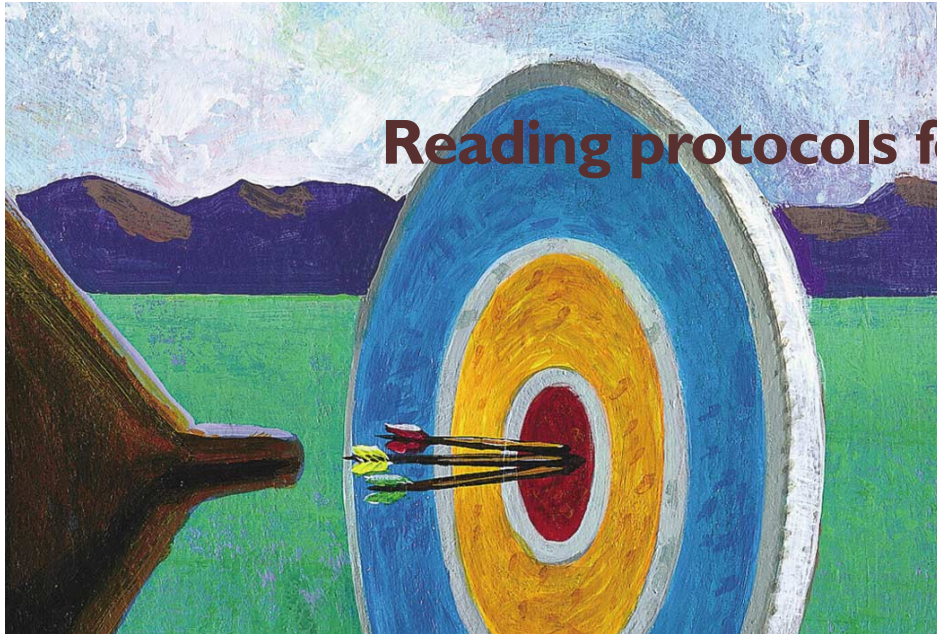
The integrated product, which combines voice-to-text dictation and links transcription to the Fuji PACS, efficiently delivers imaging results to referring physicians, Maclennan said.

Meditech and Fuji have integrated radiology information systems (RIS) and PACS at more than 40 healthcare facilities in the U.S., including 16 Hospital Corporation of America (HCA) sites. The Sierra View project is the first successful integration of Meditech's EMR with Synapse.

Swedish Medical Center, an HCA facility in Denver, is using Synapse with Meditech's RIS. This joining of technologies facilitates the image acquisition process for patients and improves clinical outcomes through an interface that provides admissions, discharge and transfer (ADT) information, as well as orders and reports, noted Dr. Matthew J. Fleishman, Director of Radiology at Swedish.

One of the ways in which the two systems complement each other is via the unique notes and documents features of Synapse, which enables instantaneous reading to referring physicians, Fleishman said.

"The two companies are great counterparts with their combined support and ongoing innovation," he said. ■



Reading protocols for PACS:

Making radiologists more efficient, more consistent, and more accurate

The imaging data generated in a typical episode of patient care is too much and generally too complex for radiologists to manage unassisted. Harnessing this information and converting it into better health outcomes is the objective of PACS developers like Dr. Keith Dreyer, who believe that computerized protocols for image presentation will help break the logjam.

For Dreyer, the ability of PACS to show images of all types, as well as documents and other data in a user-friendly format, is critical to keeping up with the onslaught of information. He believes radiologists could improve their efficiency by 50% if they had workstations equipped with reading protocols that present 3D images and other pertinent patient data in an automated, consistent format.



Dr. Keith Dreyer

Dreyer is the vice chairman of Radiology Computing and Information Sciences at Massachusetts General Hospital in Boston. In an interview with *Insights & Images*, Dreyer explains what reading protocols can do to enhance radiographic diagnosis and how 3D imaging and other forms of advanced image processing will be integrated into PACS.

I&I: Some people define reading protocols as “automated reading,” while others think of them as electronic film-hanging protocols. What’s your definition?

Dreyer: Just so people have a reference point, reading protocols contain within them the notion of hanging protocols. But they are much more than that, in that hanging protocols are a static concept in which you’re typically dealing with just images from known modalities—CT and MR are the most common, although plain film and ultrasound also come into play. In thinking about reading protocols you also need to consider the exam protocol; that is, how the exam is performed. Do you use contrast or not, do you obtain thick cuts or multisections? How much contrast do you give, when do you give it, and when do you scan?

Reading protocols will be to some extent driven by this information, but they will also key into indicators from the patient and the patient’s demographics. One of the main things to be included will be prior exams. What complementary imaging studies have been performed that the user needs to see at the same time? This is already done to some extent with hanging protocols, but it’s lacking. Additional information, such as imaging studies done outside of radiology, including cardiology and endoscopy, has been pretty hard to come by. There will also soon be genomic data coming across that we’ll want to see prior to rendering a diagnosis.

I&I: Are you implying that without an electronic medical record system you can't do this?

Dreyer: Where they have EMRs, some people are leaning on them to fill this gap in reading protocols. If you need to know a patient's lab value, or you want some information about patient history, you currently have to go to the EMR—or make an awful lot of phone calls. You can imagine a reading protocol of the future that gathers this information through CCOW or some other mechanism and makes it available to radiologists without them having to leave their PACS reading environment. We need a way to share context-sensitive information at the point of care, which is what CCOW (Clinical Context Object Workgroup) is about.

I&I: What's driving the use of reading protocols?

Dreyer: The main reason is the need to respond to information overload. They make you far more efficient, they can make you far more consistent, and, I believe, potentially more accurate.

I&I: Can you break that down for us?

Dreyer: Reading protocols make you more efficient because you don't have to do a lot of the prep work to view images. In theory, you can set up a PACS viewing experience—how you want to have images presented—for now going forward, for certain types of conditions. Say a patient has had a CT exam using a certain exam protocol. The reading protocols let you view an image in 3D in one area, lets you look at 2D data in another quadrant of the screen, and perhaps allows you to examine a prior somewhere else. The protocol saves you the time of having to set that study up the way you like it, in the same way you save time when someone else hangs films for you on an alternator.

As for consistency, you are not likely to miss images doing things this way. If you know that you have an MR hanging protocol with images from four pulse sequences appearing in the four quadrants, you don't have to drag them up one at a time. You're consistently looking at the same thing in the same place every time. You know the enhanced image is to the left, and the nonenhanced to the right, for example. You don't have to mentally retrain yourself every time you're looking at it.

Accuracy falls out of that because you're not actually looking in the wrong direction or missing an entire series coming up because it wasn't staged to come up

that way for you. This is similar to what happens with an alternator if the filing person doesn't put the last three images up for you.

I&I: So you can customize your hanging protocols to suit your taste?

Dreyer: Yes, but that's both good and bad because you want to have consistency, and you may even want to have consistency among users in your department. One way to create a reading protocol is to say, we're going to create a master reading protocol for all neuroradiologists reading this type of exam, or all body radiologists reading that type of exam. To accomplish this, the PACS administrator meets with the subspecialized radiologists and asks them how they want to read their images. They seek consensus.

There are also individual preferences to take into account. People still flip images a certain way, and look at things differently. Some like to have four up; some like to have one up. Report delivery would probably be more efficient and consistent if everyone did it the same way in a department, but that's not the real world. You have to allow for individual modifications. These individual changes should be persistent throughout the system, however.

I&I: Is it through this customization that some of the progress will come in refining the product?

Dreyer: Undoubtedly. It's also true that nothing stays the same in medicine, so when someone develops three new pulse sequences for MR, someone else will have to figure out the best way to deal with this on the PACS viewing end. I don't think out of the box someone is going to dream up the best way.

Things become far more complicated and mission-critical when we get to 3D and volume visualization. The good news about having a multislice CT study with 3000 images of the chest is the fact that at least you know what you've got—3000 axial slices of the chest. But with enhanced image visualization, you can also have MIPs, MPRs, curve reformations, and other things like double oblique images coming in. And they're simply piled on top of the 2D image sets. Now what's the protocol for adding 3D visualization onto a protocol exam and how do you make it consistent? And if that's not going to be well defined, then how does a hanging protocol work and should it be more like a reading protocol? Should there, for example, be a window dedicated to 3D that

just runs the 3D viewer and lets the user figure out the MIPs and MPRs and whatever else they want? Maybe the next stage of this will permit such things as, OK, when we're looking for the Circle of Willis, we have to be able to rotate the image at this angle and do a MIP with a thickness of 2 cm. All this needs to be defined, but currently there are no standards. Fortunately, I think the presence of protocols will allow standards to be useful. If we didn't have reading protocols it would be hard to implement standards.

I&I: It sounds like we're still at the front edge of this?

Dreyer: That's true for 3D and volume visualization. We're right at the front door of this technology being present in most workstations.

I&I: What's your personal experience with reading protocols using Fuji PACS?

Dreyer: What I like about the reading protocols with Fuji is that they incorporate all Microsoft concepts of information management. Physician notes can come up, annotations can appear, as can information like scanned documents and web pages. That's what's unique about the Fuji concept—they've already stepped outside the notion that this is just about images. They have the underpinnings for an application that uses a web page that shows 3D visualization. That release is available.

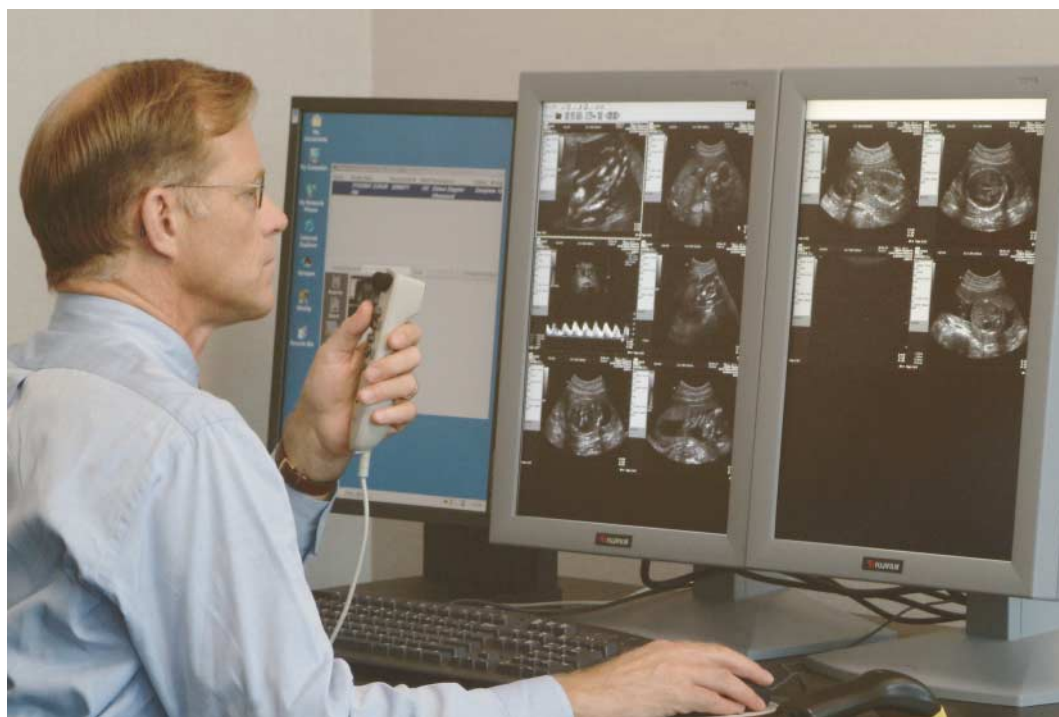
I&I: Do you think radiologists will respond to 3D as a good thing for them, or as just one more thing to worry about?

Dreyer: That's a good distinction, and the answer depends on which side of the fence you're on. It's like PET/CT: If you really understand it, PET/CT is phenomenal, but if you don't, then it's probably another burden. The same thinking applies to 3D. If you use 3D appropriately and—big assumption

there's a 3D application that's available for you to use appropriately, then it will be a tremendous aid. This implies that it's easy to use, it's easy to repeat, it's easy to obtain data from, and it's very fast and easy to display. If it falls short in these areas, then it's going to be a burden.

There are ways in which 3D can speed you up, but also ways it can slow you down. There are ways it can make you more accurate and ways to make you less accurate, depending on how you use it. It's one of those things you can't shy away from and expect to go away, however. It's here. We're waiting for that 3D application or that set of 3D applications that are very easy for the radiologist to use that don't burden their time.

In the absence of that breakthrough, in our 3D imaging lab at Mass General, we have supertechs who have been trained to prepare the 3D protocols that we're talking about. It's their charge to deliver semiautomated, processed data in a consistent fashion for the radiologist to read. The goal is to relieve the radiologists of having the burden to do any 3D processing, yet benefit from the advantages of 3D visualization. ■



Reading protocols for a PACS workstation can make radiologists more efficient by not requiring them to do a lot of prep work to view images.

'Soft' savings in patient care contribute to success with PACS

A major reduction in film consumption is generally the biggest cost savings to be made when converting to PACS, and for DCH Regional Medical Center in Tuscaloosa, AL, this has amounted to a cool half-million dollars. What makes PACS a success story at this 610-bed community hospital, however, is how it has improved technologist productivity and obviated other capital expenses.

The decision to go digital was made in 2002. Fuji was selected as the digital x-ray and PACS vendor by a team consisting of the medical director, the department director, staff radiologists, a biomedical supervisor and other imaging department staff. Nine SmartCR units were installed at the facility about a month before the PACS went live in June 2003.

Synapse was chosen because the team liked its ability to link disparate databases, its compatibility with off-the-shelf workstations, and its thin-client structure. Radiologists were especially enamored with its image viewing software. Users at Synapse sites visited by the team were very happy with their equipment selection, said Jim Smith, the Director of Imaging Services at DCH and a team member.

"The best feature of Synapse is its ease of use and the fact that every workstation has full functionality," Smith said. "The PACS supervisors like the fact that the images are available to everyone at once, while the technologists like not having to deal with film jackets and lost films."

Radiologists, too, were won over. While the time that PACS-enabled radiologists save when consulting with referring physicians can't easily be quantified, it is not trivial, Smith said. These "soft" savings were not included in a financial analysis of the PACS that he prepared with the hospital's chief financial officer.

Radiologists' proficiency with PACS was demonstrated to Smith recently when he was in the medical director's office. A referring physician called to ask about a patient's imaging workup. The radiologist typed in the patient's name, called up the study, and was able to answer the physician's questions in less than four minutes, he said. Prior to the installation of Synapse, this exchange would have required the retrieval of a film jacket from the file room, which could easily have taken 30 minutes or more.



Radiologist Susan Griffith reviews a patient exam on a Synapse reading workstation at DCH Regional Medical Center in Tuscaloosa, AL.

"There's no doubt in my mind that responding to referring physicians on the fly like that enhances patient care," Smith said. "It's one of the major benefits of PACS that wasn't even figured into our business proforma."

In addition to saving \$548,000 on film, the PACS also shaved an estimated \$149,000 from film library staffing, \$295,000 in improved technologist productivity, and almost \$430,000 in capital avoidance. Smith estimated total cost savings with the PACS from June 2003 to June 2004 at \$1.5 million. With a total annual cost of \$784,000, the PACS nets about \$718,000 a year, Smith said. The \$3 million investment will thus break even in 4.1 years, he added.

"We had a way to measure everything we included in this analysis. We didn't include any soft costs," Smith said. "Naturally, everyone is very pleased that we've made this work for us financially."

Another area in which the use of Synapse has pleased hospital staff is in report turnaround time. The time it took from when an order came into radiology to when a report was transcribed varied between 15 to 19 hours in the four years before DCH went to PACS. In the last six months, that figure has dropped to eight hours.

"It's hard to get your hands on it, but I'm sure that when you get reports back to the floors this quickly, it has some impact on reducing the length of stay for inpatients," Smith said.

Had his institution delayed its conversion to PACS, Smith said his department would have had to expand its film library and replace a number of daylight loaders, film processors, and other film-based equipment—at a total cost of about \$1.3 million. Another hospital in the DCH Health System, Northport Medical Center, implemented PACS a year after the Tuscaloosa facility with similar success. Other hospitals in the system are currently evaluating it.

"The combination of meeting our financial projections plus the added efficiencies we've gained in the department has made this a double win for us," Smith said. ■

A GPO's perspective on digital x-ray and PACS contracts

By John Sutton, senior contract manager at Amerinet, one of the largest group purchasing organizations in the U.S.
He can be reached at Sutton@amerinet-gpo.com.



John Sutton, senior contract manager at Amerinet

Computed radiography (CR) and other forms of digital x-ray technology are gaining broad customer acceptance. This trend can be attributed to radiology's need for higher efficiency and its steady migration to PACS and the all-digital environment they foster.

The digital infrastructure this is emerging makes it logical to acquire CR or direct digital radiography (DR). Either system can improve efficiency while reducing operational costs.

Although they are not panaceas, CR and DR enable facilities to overcome many workflow issues and essentially eliminate the possibility of lost radiographs.

For more than 20 years, hospitals have heard predictions that within five years most radiology facilities would be filmless. That obviously hasn't happened. Factors that contributed to the slow acceptance of PACS were cost, a lack of open architecture and poor connectivity. The demands of healthcare providers have changed market dynamics. A PACS that sold for more than \$5 million in 1988 can be purchased today for as little as \$1 million. As is true with computer-based technology in general, prices for PACS, CR and DR continue to decline. Most companies currently offer completely open systems.

In addition, Amerinet and other group purchasing organizations (GPOs) offer reduced pricing and consulting resources that help healthcare providers maximize the payoff of their digital implementation. Amerinet is one of the most innovative and effective GPOs in the U.S. with more than 22,000 members throughout the country. Its membership of more than 1,850 hospitals and 21,000 clinics includes small, remotely located facilities as well as large tertiary-care urban hospitals. To address the diverse needs of its membership, Amerinet has created pathways for member input that help it in developing flexible, cost-effective contracts and programs with vendors.

How Amerinet makes contracting decisions

Steady advancements in digital x-ray and PACS prompt Amerinet to continually review and evaluate these technologies. The GPO strives to maintain its edge with ongoing assessment of vendors and their products. Because of the impact and importance of digital imaging and other high-tech products, Amerinet works hard to solicit member input. Contracting decisions are never made in a vacuum and involve considerable internal analysis and committee discussion.

The first step in the process is the simplest: identifying a specific contractual or technological need. These needs are identified by working directly with members and vendors. Noncontract vendors often contact Amerinet to request an opportunity to discuss their products. This is extremely valuable information that is fully reviewed before the GPO moves forward.

Each vendor in the PACS and digital x-ray market is reviewed internally and a detailed analysis made of its products by qualified radiology technologists. Third-party product evaluations are typically consulted to make this review as objective as possible, including comparisons of technical specifications by such respected companies as ECRI. Small and start-up companies are embraced by Amerinet and given equal opportunity to participate as contract vendors. Because of their potential to be acquired by a larger corporation, the analysis of these companies must include successor planning. Company longevity and stability are considered, as well as ongoing product and technical support.

When completed, this analysis is summarized and sent to Amerinet's diagnostic imaging committee for review. The committee also receives a corporate profile and the detailed product analysis for discussion at its next meeting. Vendor candidates are then presented to Amerinet members in various parts of the country.

Member input is derived several ways, including feedback from advisory committees. Amerinet believes that a single technology advisory group is restrictive and limiting. Several key groups, on the other hand, can provide a cross-section of the membership and its needs. Our goal is to include as many members as possible. These groups meet regularly, and represent diverse geographic regions.

Assuming there is positive feedback from the advisory committees, the successful vendors are contacted and sent requests for proposal. Moving from step one through the effective date of any new contract typically takes three to six months. The timeline is shorter if the product being evaluated is provided by an incumbent vendor, although an evaluation is still made.

Evaluating the contract portfolio

Contracting in rapidly evolving markets like digital x-ray and PACS is an ongoing process. Amerinet's existing contract portfolio requires constant evaluation. All contracts include a technology clause that enables Amerinet to accept unique or advanced technology that might not be available through an incumbent vendor. It is sometimes challenging to prove that a different technology is superior since the outcome for the user might appear to be the same. To address this, Amerinet staggers the expiration dates of its equipment contracts. This is different from the approach taken by GPOs that have

equipment contracts on the same schedule. Amerinet believes that its process is the best way to bring new technology to its membership in a timely manner.

There are many vendors of CR, DR and PACS, of which Fuji is a market leader. A few years ago, Amerinet and Fuji developed an agreement for CR that continues to bring the latest technology and best value to our membership. CR and PACS were added to Amerinet's film agreement with Fuji after an assessment similar to that described above.

This process for comparing and evaluating CR and DR equipment is also used for other contracting decisions. Amerinet typically offers more than one contract for any given product, which provides its members a choice. The competitiveness and flexibility of Amerinet's contracts and programs provide value to members and to vendors. The members benefit from excellent prices and added value, while vendors win by having Amerinet represent their products as part of its clinical portfolio. ■



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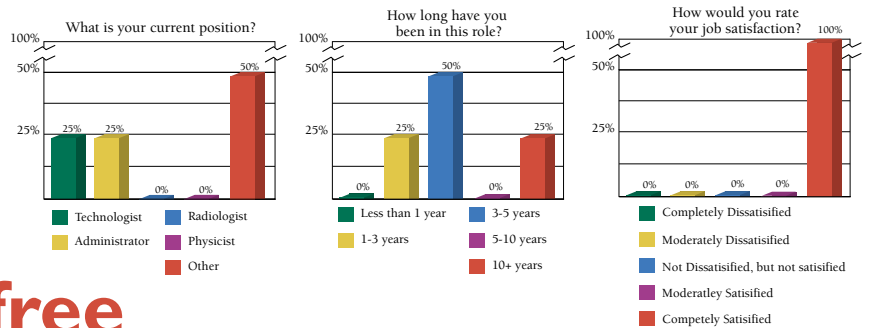
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- Physicist
- Vendor
- Other

survey results

Go on-line to get the final results. A number of people responded to this survey from the Summer/Fall issue of *Insights & Images*.

Note: percentages are rounded to the nearest whole number.



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