The FineNine

PACS administrators offer nine tips for connecting with the right vendor

by Dana Hinesly

You've heard it all before: By implementing a picture archiving and communication system (PACS) at your facility, it's possible to increase efficiency, decrease costs, and improve patient care—all in one fell swoop! Of course, that doesn't make the task of selecting a vendor any less daunting. Prices for a PACS can easily range into the millions, and, as with any large purchase, it's wise to educate yourself.

Whether you're searching for a vendor now, getting ready to upgrade, or just starting to think seriously about the proposition, you're not alone. The PACS market is growing, and vendors know it. With so many players on the scene, it pays to have a plan of attack. The steps listed here are guidelines based on the cumulative knowledge of PACS administrators from institutions of all sizes.

1 Designate a Ringleader

With just a little planning, your quest for a PACS vendor won't turn into a three-ring circus, but that isn't to say there won't be juggling, whether it be schedules or questions. Not feeling up to the task? Not a problem. Professional contractors can be hired to head the project.

"I think bringing in a consultant really depends on if there is a core group of people comfortable with evaluating different terms and options," says Philip A. Templeton, MD, FACR, president and CEO of Templeton Readings LLC (Sparks, Md), a telehealth services and strategic corporate partnering company. If no one on staff is at ease with that idea, "they might benefit from outside guidance," Templeton suggests.

Whatever route your facility takes, it is vital that this orchestrator embraces the process and learns as much as possible. The person also needs to commit to see the process through completely to ensure that the vendor keeps its promises and that the goals established at the beginning are realized.

"I think the success of PACS—and I don't care how good the system is—[is dependent on] someone good in house who makes it work. Someone who spearheads the project and who understands the radiology workflow and how it ties in with the system capability," explains Duk-Woo Ro, PhD, an associate professor and director of radiology informatics within the department of radiology at the Medical College of Virginia Hospitals at Virginia Commonwealth University (Richmond).

2 Make Sure Everyone Is on Board

To make this step possible, communication is key. More than change, people dislike surprises.

"I think communication is very important," says Templeton, who recommends the initial discussion explain the benefits of conversion as well as provide an estimated timeline. "This [step] will generate questions, which will help you know the potential problems and will uncover what issues might be important."

Does involving everyone complicate the process a bit? Without a doubt. Is it more complicated than selecting the wrong PACS solution? Not even close. And although many folks will have concerns and questions, building a team also means you have backup. It's essential to have support from all levels and from a multitude of departments, so loop in at least one representative for any team that will interact with the system.

"We included people from all departments to get an idea of their overall workflow and how they viewed the images," explains John Doblinski, PACS administrator in the radiology department of Providence Alaska Medical Center (Anchorage), a 300-plus bed hospital. "We wanted to include the main users right away, to get off on the right foot," adds Doblinski, who is trained as an X-ray technologist and has been in the PACS field for 4 years.

For those in freestanding facilities, this step means working with "your public" as well.

"In a hospital, it's easier to dictate that you're going filmless, and the referring physicians have to do it," says John Griffith, CIO of EPIC Imaging (Portland, Ore). "When you're operating in the free market, like most imaging centers, you do what the customer wants, so you have to be willing to provide different options," adds Griffith, who selected and implemented the original PACS for EPIC Imaging in 2000. To satisfy all of their clients, Griffith's team takes a few extra steps, such as printing film for physicians who prefer it to online retrieval.

"[The industry is in] a time of transition. In this time, you provide to customers [film and technology options for the] past, present, and future if you can," says Shelly Alway, RT(R), PACS administrator at EPIC Imaging. "We're able to do that here—we give them CDs, the Web product, and the film if they want."

And once you have a selected vendor and are assigned a representative, make sure that person is involved, too. His or her goal is for you to be happy, and, coincidentally, your goal is the same. Keeping the vendor rep involved will improve the odds that you both get what you want.

3 Make Friends With the IT Department—Now

Sure, these days, you probably only think of calling them when things stop working. But by involving IT early in the process, these tech wizards can help things *keep* working. For that to happen, IT folks need a chance to evaluate and weigh in on the PACS, before you sign on the dotted line.

"It is essential to include IT from the beginning," Ro says. "We need their support with things like the network infrastructure and rolling out large numbers of PCs."

Keep in mind that nothing will collapse a network faster than asking it to do more than it can handle.

"You definitely need your IT department involved from the get-go," Dolbinski says. "You're sending massive amounts of data across the network; also, for security concerns, they need to be involved. We're also using the IT help desk to troubleshoot."

Relatively speaking, text files aren't big—for example, a seven-page document takes about 50 KB of space. Images are another story, and just one can consume 20 MB easily. Tally the number of images in a typical study, and the issue is clear. And if you're unsure about the difference between KB and MB, your IT guys can help you there, too.

Go With the (Work) Flow

Knowing how your facility works now—not just in theory, but in day-to-day reality—will garner the best results once the entire process is automated.

"The first thing to do is to plot the workflow," Templeton says. "Really walk through it so that you understand the impact these changes will have on all areas of your organization."

Epic Imaging's Griffith concurs and adds, "Spend some time outlining the process from when the patient checks in, to what the technologist needs, through to the radiologist."

Resist the urge to jot something down quickly. Review the entire process in excruciating detail to ensure you don't miss a step. Itemizing these procedures will put a spotlight on potential hurdles, such as facilities lacking the hardware required to view images. It also will help your team identify bottlenecks. Simply automating a process won't improve the situation. Look at the trouble spots and determine objectively how PACS can help.

"This process will help you start to uncover some of the later steps, so you have customer satisfaction rather than customer complaints," Templeton says. "Even though it's a positive change for the hospital, it could be a negative change if the workflow isn't anticipated."

It also will identify situations specific to the way you do business, as is the case with outpatient imaging centers.

"One of the biggest things [we find that vendors] leave out of PACS is what to do with your paperwork. In a hospital, it is a problem [of the] medical records [department], but with outpatient imaging centers, we do it all," Griffith says. "So you have to find a solution for the traditional paperwork documents." Griffith believes the ideal PACS solution for independent centers is one that "will eliminate the need for radiologists to have any paperwork in front of them."

But he also advises against becoming too attached to your current way of doing business. "Find a PACS solution that will fit your workflow, but don't feel that this is the only way to do things," Griffith advises. "Take advantage of the emerging technology, and adapt your workflow to something that will be beneficial."

Three Important Steps: Training, Training, Training

Knowledge is power, so arm your staff. Implementing a PACS solution means that some steps are eliminated while others are created. Radiologists might have to adjust to reading the images on a monitor instead of film. Technologists might need practice with the new interfaces. Converting to PACS is your chance to keep everyone—from computer-phobes to computer-philes—in line, letting them know how it works and what is expected of them.

"[Training] is a simple step that will make it much easier when you get started," Templeton says.

Training is sometimes available from vendors, but a variety of small independent companies, without allegiance to any particular vendor, specialize in bringing your users up to speed. Find an approach that best suits your team and budget, and go forth. Whatever you do, don't skip this step.

Determine a Game Plan

Exact steps for implementing PACS are not set in stone. Some facilities do it in stages, and others follow the "big bang" approach. (And if you look hard enough, you'll find every variation in between.) PACS vendors on both sides of the transition fence have valid—and passionate—positions on the best approach.

CONVERSATION STARTERS

Talking with potential PACS vendors is a little like dating: It can be awkward, but it could be the start of a beautiful relationship—one with potentially long-term implications.

"[Facilities have] a range of options and vendor choices," says Philip A. Templeton, MD, FACR, of Templeton Readings. "Which one you select will determine the cost basis for now and in the future, as well as whether you have a return on investment in 6 months, a year—or never."

When on the hunt for your facility's PACS solution, it's important to keep in mind that vendors are supposed be a source of solutions, not problems. "Vendors should bring predictability to the project throughout the entire implementation," says Anant Baliga, manager of healthcare technology practice at Symphony Corp (Madison, Wis).

The following questions were compiled from industry experts and seasoned PACS administrators. By no means exhaustive, this list is a good base for facilities meeting with multiple vendors. Be sure to include queries addressing specific issues at your facility.

- Is the system architecture scalable?
- Do you have the ability to customize a system? Will you customize the system specifically for us?
- Have you ever installed at a facility similar to ours? Can you arrange for us to visit that client?
- Can you provide us with an on-site demo?
- Do you have a disaster-recovery system in place?
- How do you ensure that the system will support our facility's workflow?
- How do you know if the PACS is having technical problems? Do you monitor the system or rely on the user to notify you?
- Do you provide user training? If not, how do you recommend we get it?
- Is the functionality of the PACS limited if it is integrated with an existing RIS?
- Do you offer technical support? What if we're using multiple vendors?
- When the system does go down, what is the contingency plan?
- If we ever switch vendors, how difficult will it be to migrate our stored images and reports?
- Are there any cancellation penalties if we go to another vendor? If so, how is the "escape clause" written?
- If you don't meet your uptime guarantee, will we be reimbursed for downtime?
- Does your PACS support DICOM-modality worklists?
- Is some type of "study validation" incorporated into your PACS?
- If it's 2 AM and we need to interpret an exam remotely, how will we access it with your PACS?

—DH

"In today's environment, one should probably not entertain [what are called] mini-PACS solutions. You should only do that if you want to practice mini-radiology," Templeton says. "By starting with a mini-PACS, you live in both analog and digital worlds and prolong the pain of conversion. There should be ways today that one can win in both total conversion and cost effectiveness."

But at times, even the most affordable system isn't an immediate option for every facility. "We waited about 3 years to get our PACS, primarily because we had budget constraints," says Dolbinski, whose team found that easing into the process worked best for them. "Technologists' workflow totally changes. I recommend a phased-in approach before you get the PACS to work out your CR bugs first."

Implementing a PACS in stages also might be helpful if you're fighting an uphill battle at your facility. "If a hospital is thinking about converting to PACS but doesn't have the initiative, [it should consider] converting to digital enterprise-wide but keeping radiology conventional," Ro suggests. "It is an ideal way to demonstrate to the hospital administration that providing the service to the clinicians is a big benefit. Once they realize that, then they can convert radiology."

There's no one way to implement a PACS solution; there's only the way that works best for your situation. Once the key elements—budget, goals, and drive, for example—are factored in, you'll be able to find a vendor to accommodate your requests.

7 You Have to Name It to Claim It

Just like the many options for implementing PACS, facilities have just as many choices for the PACS itself. Is your goal to improve patient care? Or is the goal to increase patient throughput? Consider every function you'd like to automate, both now and in the future. If your facility or patient base is growing, the system must be scalable.

"It's very important to understand your future, not just the current needs. You have to look at not only the acquisition of PACS today, but also in 1, 2, 3, and 5 years," Templeton says. "Know what happens with your archives, what happens with software upgrades for PACS displays, and what happens with monitors and workstations."

Where and how will you store images? Do your radiologists need access to studies conducted before the PACS was online? If so, how will they retrieve those pictures?

"What's really critical is to understand how much access you need to your images in immediate nature and then how much you need in terms of long-term retrieval of prior images," Templeton says.

Detailing your workflow identifies a lot of the questions you need answered, but specifying your exact goals before you start will help ensure that you achieve them.

8 Ready, Set, Go ... Meet With Vendors

Oh sure, you would think this step would be the first, but you don't want to jump into meetings until you're prepared to take the reins and guarantee that the needs and capabilities of your facility are driving the process.

"Be prepared and organized," Alway recommends. "Take a spreadsheet with specific questions regarding your own needs and workflow so you aren't led astray by [the system's] bells and whistles, which is easy to do."

When initially meeting with vendors, quantity is more important than quality, so go to where they gather. "Going to a trade show is a great way to demo the workstations and get a feel for the PACS system," Griffith adds.

Whether it's at conventions hosted by the Radiological Society of North America (RSNA, November 28–December 2, 2004, in Chicago) or the Society for Computer Applications in Radiology (SCAR, June 2–5, 2005, in Orlando, Fla), any place where vendors gather serves the same benefit. Walk the show floor, ask countless questions, and take detailed notes. Before long, you'll have narrowed the field to a handful of serious contenders. (For a list of questions to ask vendors at various events, see "Conversation Starters" on page 70.)

Come and Knock on Our Door

If you like to take field trips, your hard work is about to pay off. Now that you know what you want, what you're dealing with, and whom you want to talk to, it's time for hands-on experience.

"The best thing is to go to a [current client's] site and see the vendor's offerings in operation," Templeton recommends. "You can speak to the user and find out how it's going for them as well as what problems they've encountered."

One site visit can provide you with the insight it would have taken you months to learn on your own. "Talk with the people who use the system day-in and day-out," Ro advises. "You'll get a realistic idea of how useful it is and how easy it is to use."

Since these site visits often take place without a vendor representative around, don't be shy—ask the tough questions. How did the vendor resolve problems? If you had it to do over again, would you have selected this vendor? How long did it take your facility to realize a return on investment?

Another option is to take the system for a test drive. Many vendors have the capability to provide a temporary version of the PACS so that your facility can do a trial run of using the system. "Being able to use it within our environment versus visiting locations was great," Dolbinski says. "When deciding if it works for us, I'd rather use our interfaces." MI

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BLISSFUL COEXISTENCE: APPROACHING RIS/PACS INTEGRATION

At times, it seems that regardless the quandary, "improved communication" is the solution. Therefore, it should come as no surprise that the issue of seamlessly integrating a radiology information system (RIS) or hospital information system (HIS) with a PACS would be dependent on successful interaction.

The bad news is that getting these two systems "talking" isn't as simple as plug-and-play. The good news is that with today's technology, it's not extremely complicated either.

THE FUNDAMENTALS

A facility's PACS and RIS play two essential but distinct roles in medical imaging.

"The RIS handles all of the patient information, such as registration, insurance, and reporting. It's the front-end process," explains Chen-Tai Ma, PhD, of RADinfo Systems (Herndon, Va). "The PACS is the backbone. All the patient information and history is passed to the PACS from the RIS, and it should be integrated into one system."

The RIS handles information using the Health Level 7 (HL7) standard set by the Integrating the Healthcare Enterprise (IHE) initiative in 1998. PACS, on the other hand, manages images with Diagnostic Imaging and Communications in Medicine (DICOM) standards.

DICOM and HL7 are two different languages; as with any "foreign" interaction, some sort of translation is required for the two devices to communicate. The translator, or interface engine, will convert the language of the RIS (HL7) into DICOM, a language the PACS understands.

More and more, vendors are creating integrated RIS/PACS components where this translating ability is inherent to the system. These "brokerless" systems are completely transparent to the user. Fully integrated systems also are available, designed from the start with end-to-end communication in mind.

"It's great to have an integrated system, a one-vendor product that does both, because it's built on a database that supports all the information from the RIS and PACS," says Matt Long, VP of marketing at Stentor Inc (Brisbane, Calif). "To bring those two together is very powerful. If you don't have this common vendor [for both systems], the fear is that one of the systems will sacrifice functionality."

That's not to say that a PACS and RIS from different vendors don't have the ability to communicate beautifully. Although it might take a bit more coordination, peaceful coexistence is possible.

"Have an interface analyst from the RIS vendor and an interface analyst from the PACS vendor work together," recommends Brad Levin, director of strategic marketing at AMICAS Inc (Boston). This process will make sure that both systems are receiving the information they require and are able to accurately transfer them.

THE FUTURE

Many vendors see a future where the challenges of integrating the traditional RIS/PACS setup cease to exist. By combining the technologies and incorporating the Internet, the convenience and reliability of the system will grow by leaps and bounds.

"I think there will be fundamental changes in the marketplace that will blur the definition of RIS and PACS," says Bob Cooke, executive director of marketing, network systems, at FUJIFILM Medical Systems USA Inc (Stamford, Conn). "We're talking about benefits to a single architecture that allow better control over the cycle of the work product."

The future is also an important consideration for PACS administrators and others involved in the evolution of digital imaging at their facility. "A PACS/RIS integration should be a living, breathing system that should change over time," Levin says. "It shouldn't be a rigid system."

WORTH THE EFFORT

Though completely combining the RIS and PACS in a facility can be a time-consuming undertaking, the tangible improvements to workflow and patient care make it worthwhile.

One primary benefit is the ability to access DICOM-modality worklists, which display the day's orders as soon as they are entered into the RIS. By requiring that the patient and study information be added only once, efficiency improves for system users and data-entry errors decrease.

Worklists are just one example of the workflow that should be analyzed carefully before making any purchases to integrate the RIS and PACS.

In closing, Ma offers advice on the true goal of the systems. "It is important to make sure [the facility] ends up with a system that will help them enhance workflow, increase productivity, and improve the quality of patient care," he says. "Productivity is very important, but improving the quality of patient care is more important."

—DH