Zwanger-Pesiri: The Right Formula

Auto-positioning features and new flat panel detector technology add up to high-speed, quality image production for Long Island imaging center operation.

By George Wiley

Steven Mendelsohn, MD, is a general radiologist and president of Zwanger-Pesiri Radiology Group, a radiologist-owned subspecialty practice with six clinics (and a seventh under construction) in several communities on Long Island, NY. While Zwanger-Pesiri envisions itself as a high-end imaging provider, it provides complete services, with radiography remaining a key component.

In some of the group's clinics, Mendelsohn says, the plain-film radiography units were old and in need of replacement. What to buy to replace them was the question that the practice faced, with digital radiography (DR) and computed radiography (CR) being the primary contenders. "We were committed to DR," Mendelsohn says. "We had had experience with DR and CR. For our style of practice, with our patient flows (especially at peak volume), we found that DR was far superior for us."

Not only were DR images more rapidly displayed on the radiologists' monitors, but the technology dispensed with time-consuming cassette loading, giving technologists more time to work with patients. "We talked to a number of vendors, and we saw every piece at the Radiological Society of North America meeting," Mendelsohn says. "The Swissray image quality was high, and there was ease of interface with our existing information technology, the radiology information system (RIS), and the picture archiving and communications system (PACS)."

For its upgrade, Zwanger-Pesiri settled on the Swissray ddRFormula. Mendelsohn was impressed by the low technologist-training demands of the system and by the efficiency projected to result from the Swissray flat-panel detector and the automated patient positioning system. Marc Fischer, Zwanger-Pesiri's director of operations, was also part of the decision-making team charged with choosing a new radiography vendor. "After thoroughly reviewing all the DR vendors' proposals and conducting site visits, we felt that the Swissray product had the most to offer. It had a flat-panel, high-resolution detector that wasn't on a cord, a compact design for siting, a strong sales and service support team, and competitive pricing," Fischer says. "These were all driving factors in our decision-making process."

The first Swissray ddRFormula was installed at the group's Medford clinic in June 2006. A second ddRFormula is being installed at the Lindenhurst clinic and two more are on order, Mendelsohn reports. "We may add more beyond that, once we get those installed," he adds.

"The delivery and installation was very quick and seamless," he says. "Within 3 days, we were up and running. The interface with the RIS and the PACS took literally a matter of minutes. Everything communicated immediately. There was no need for any vendor to change interfaces or software. The work list worked instantly. The kinds of problems we've had with other vendors, we didn't have with Swissray."

Mendelsohn notes that the radiographic studies performed at Zwanger-Pesiri are typical of an outpatient practice, composed largely of extremity, joint, and spine examinations. Speaking as a radiologist, Mendelsohn calls the image quality of the ddRFormula radiographs superb and excellent. "I can compare it to CR, and its a lot better," he says. "Compared to our old DR, it's better. It's tremendously better than film."

Fischer says, "The flat-plate detector in the new ddRFormula yields the highest quality diagnostic imaging we've ever seen, and we've been performing DR with other systems since 2000. The radiologists rave about the new image quality." Fluoroscopy and barium studies will continue to be done on the group's old CR systems, but virtually all other radiography will be routed through the ddRFormulas because they are so much faster, and the images produced are so much better.

ENHANCED EFFICIENCY

Because it has only had one machine in service, and that for just a few months, Zwanger-Pesiri has no data to show how much more efficiently patients are being processed using the ddRFormula. At the single site in Medford where the system has been deployed until now, procedural volume is low, at around 20 patients per day. The ddRFormula has never come close to being challenged by that patient flow. At Lindenhurst, where the second machine is being installed, the procedural volume is around 70 per day, according to Fischer.

"We believe, with this single unit, that we can maintain, or even increase, our service," Fischer says, "because it takes so little time for throughput. People could almost hold hands and march through the unit."

Bob Shults is head imaging technologist at Zwanger-Pesiri's Medford clinic. He is the person who has had the most hands-on experience with the new Swissray ddRFormula. Addressing the

advantages of the flat-panel detector, Shults reports that it is much faster than the CR unit that it is replacing. He also says that it delivers a smaller dose of radiation to the patient. Beyond that, he adds, the image quality "blows away conventional x-ray." The machine's technical factors are preset, he adds. All he has to do is press a button to specify the body part being imaged and the size of the patient. With the presets delivering low radiation, patients benefit doubly or triply if they need to undergo more than one study.

He says, "The company has set the technical factors so that you're not giving more radiation than you should. You can override them, but there's never been a need to. The image is never underpenetrated or overpenetrated. It's a perfect radiograph every time." There are no cassettes to change and, of course, there is no film. The digitally collected images go from the ddRFormula to the technologist's monitor and from there, with the punch of a button, straight to the PACS. Further, Shults says, he can see whether the positioning he did with the patient is unchanged once he is in the control room, ready to capture the image. A monitor in the control room lets him make sure that the patient has not moved.

AUTOMATED POSITIONING

The control-room monitor is only one piece of what Swissray has designed into the ddRFormula's automated positioning system. With each new patient, the machine automatically returns to its normal-patient defaults; from there, Shults makes the needed adjustments. Beyond patient size, he specifies which body part is to be imaged and the type of shot that is needed.

Shults says, "You type the patient's name, and then there's a cartoon with the different body parts you can push. Say you select an elbow; then, within that screen, you can position the patient and look at the live cameras, and also look at a picture of how you're supposed to position and how to angle the camera," he says. If the technologist is confused, he or she can also call up a page of script on the control monitor that explains, in writing, how to position the patient for the called-for shot, he adds. The automation is so simple, however, that this is rarely necessary.

The machine auto-adjusts to each body part and the desired shot. "I push a button and the machine does all the angling for me, and all I have to do is put the body part in the right spot," Shults says. To make sure everything is correct, all Shults has to do is check the control-room monitor; then he makes the exposure. "I've never seen an unreadable image," he says. "If a doctor has a complaint, it's usually a positioning problem, not exposure. There might be an elbow oblique, but maybe we angled a little too much. That's the human factor."

Another great feature of the ddRFormula is that Shults and the other technologists can manipulate the images on their monitors, preparing them the way that they know the radiologists or referring physicians want them. Shults says, "Let's say you come in for bilateral hands. I can take an image of both hands next to each other, and then I can crop out your right or left hand and just send that to the doctor. We usually do anteroposterior, oblique, and lateral views on hands. The old way took six exposures. Now, we can do it in three, and we can go in and crop it, postprocess it, and give the radiologist six different pictures."

All this automation adds up to quick throughput for patients, Shults says. A chest radiograph once required 10 minutes. "With the Swissray it takes about 1 minute," he says. Shults estimates that he actually takes about 2 minutes with each patient, but 1 minute is spent talking to the patient to promote relaxation for the exposure, he says. Most of the time consumed in radiography is spent preparing patients for the examination, Shults says. Once he sees them for the actual imaging, it is over very quickly.

Most radiography patients at the Zwanger-Pesiri clinics are seen on a walk-in basis. Shults says, "If you're out in the waiting room and five people are in front of you for a chest x-ray, how long are you going to have to wait? That's the best way to get people to come back to you. If there are five in front of you and you only waited 10 minutes, you're probably pretty happy, you'll probably return the next time."

Add to that the speed with which the referring physician can receive images, and both patient and referrer become satisfied customers. "That's where your return on investment comes from, in the whole scheme of things," Shults says. "I don't know if that's a measurable return, but it's great service."

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Zwanger-Pesiri operates six outpatient imaging centers on Long Island, NY.

Another advantage of rapid image processing is that Shults can send patients through imaging using other modalities and still handle the flow of radiography patients. "While things are slow and quiet and I'm doing an MRI, I can go and do an x-ray and come back while the patient is still in the MRI. While I'm gone, one of the staff will sit with the MRI patient. This is great for places where you want to be a multimodal technologist," Shults says. "The Swissray has definitely changed my day." He adds, "Speed, reduced radiation dose, and image quality: those are what Swissray does best. What else do you need?"

As Mendelsohn says, "The ddRFormula has the flat-panel detector and is the most technologically advanced, and the interface technology has been greatly simplified, which gives the system greater residual value. Why buy old technology when you can buy the best?" ■

George Wiley is a contributing writer for Imaging Economics.