

Same-day Service

Tucson facility uses "out-of-this-world" technology to turn around results faster

BY DANA HINESLY

Some 400 years ago, Galileo created a compound microscope based on the optics he first developed for use in a telescope. Earlier this century, a group of optical science researchers from the University of Arizona in Tucson followed his lead.

Technology originally developed to create very large array telescopes has been miniaturized four orders of magnitude and made into a microscope chip. The result was an individual microscope measuring less than 1 cm high and employing aspheric optics.

"We can take 80 of these microscopes and aggregate them into a geometric array, making it possible to scan an entire glass slide in a single sweep. The scan speed is very important to laboratories. The system uses massive parallel processing, which also will have implications for its use in analytical microscopy in the future," says Ronald S. Weinstein, MD, scientific director of DMetrix Inc, Tucson, Ariz. Weinstein is a co-inventor of this patented array microscope, which, including its camera, is the size of a stack of five quarters. "This technology has made it possible to take a biopsy and replace the traditional overnight processing method and slide readout with a new process that takes a few hours," he explains.

Clinicians don't have to be stargazers or lab rats to appreciate these advances. The scanner—marketed as the DMetrix DX-40—is a keystone in the Tucson Breast Center rapid breast service, which was established to master an approach to returning breast biopsy results the same day. This patent-pending process, called UltraClinics, was conceived based on a prior method pioneered by the Arizona Telemedicine Program, which has been providing mammography results in less than 1 hour to women of the Navajo Nation for more than 6 years.

"We started thinking that if we can give them their final mammography report while they are still in the office, why can't we add the laboratory component and make it possible for them to have both their imaging results and their lab results in the same day?" questions Weinstein, chairman of the board of UltraClinics, who believed the goal was feasible because the vast majority of

women who undergo biopsies receive good news. "The major focus of this program is to give same-day results to the 80% of women who are going to have benign breast biopsies. There is an enormous amount of psychological trauma for women when they are waiting for their mammography results—and that amount of anxiety is unnecessary and avoidable with modern technologies."

Although the rapid scanning capabilities are a vital component, it's only possible to fulfill a quick delivery promise on a large scale with a highly organized workflow process. The full details of this approach cannot be fully disclosed until the patent process has been completed. Without question, however, the UltraClinics concept would not be possible without the use of telemedicine.

In Tucson, the UltraClinics process begins in the morning with a breast biopsy. The specimen is then transported to a laboratory, located several miles from the clinic. The DMetrix DX-40 is used to quickly provide laboratory results. If a pathologist is available on-site, the diagnosis is made immediately; if one is not on-site, a remote pathologist accesses "virtual slides" via the Internet and provides a diagnosis.

"If it's benign, they immediately issue a report," says Weinstein, who is also professor and head of the department of pathology at the University of Arizona College of Medicine and founding director of the Arizona Telemedicine Program. "If a malignancy is identified, we don't submit a report until we get a second opinion from another pathologist in our group practice. Because the second pathologist is not at the same location as the processing laboratory, that processing lab scans the slides and a pathologist at another site renders the second opinion."

Enlisting this type of point-of-care availability from pathologists makes it possible to deliver results within hours; it also enables much of the UltraClinics rapid turnaround process.

"Scheduling becomes a major challenge in creating these kinds of services, because it requires the doctors to develop an awareness that they're going to have cases to provide service on and determine how to incorporate them into their very busy schedules," Weinstein explains.

Complicated though it may be, combining breast imaging and rapid laboratory reporting is working. More than 6,000 Navajo women have benefited from this accelerated turnaround, and, since its May 2006 opening, UltraClinics at the Tucson Breast Center has provided same-day results for about 150 biopsies.

Outside of breast imaging, there is no technical reason the UltraClinics process couldn't be applied to a variety of specialties, according to Weinstein. The process is already being used to provide quick results for prostate specimens, and the technology could be just as effective for colon biopsies and dermapathology.

"We also have expanded to perform rapid processing of kidney biopsies from transplant patients, and we are impressed with the excellent reception of our in-house clinicians," he says. "In just 3 or 4 hours, they are getting answers that used to take overnight, so it really changes the clinician's mind-set as to what service can be. It puts them on a different timeline as they go through the critical pathway."

The goal for Weinstein and his colleagues is to make this type of processing available to existing breast imaging centers, either by equipping them with their own modular laboratories and providing them with off-site telepathology diagnostic services, or by providing access to nearby service centers that would handle the rapid tissue processing and provide expedited access to a diagnosis. Not only would it change the current service model, but also, access to the tissue processing revenue presents a unique opportunity for imaging centers seeking a respite from cutbacks in compensation.

"I've been the pathology chair for 30 years, and most of the patient care phone calls I get are about women who want to know the results of their breast biopsy," Weinstein says. "We have found a way to address that problem, bringing it to the mainstream to the point where we have done many patients and understand this practice model inside and out—and we did it with a lot of care and attention to quality issues. Patient satisfaction is high, and that's very gratifying."

Dana Hinesly is a contributing writer for Medical Imaging. For more information, contact mdi@ascendmedia.com.



► A Safe Bet

BetterHealth provides a seamless introduction to EHR

BY DANA HINESLY

Modern technology has revolutionized the way radiologists work. A single physician can read for multiple imaging centers—from the comfort of his or her own home, in many cases. However, with the perks comes a modicum of inconvenience.

“Do you know how many Web sites physicians need to access these days? They have the hospital’s Web page, Lab Corp’s Web page, Quest’s Web page, the imaging center’s Web page; and the transcription company typically has a Web page,” says Jack Kemery, president of BetterHealth Global (USA) Inc, a subsidiary of Health One Global Ltd, West Chester, Pa. “There is an advantage to a physician’s office not being required to go to all of these sites.”

BetterHealth offers just such an advantage, providing physicians with a central location from which to receive every piece of patient-related data transmitted electronically. Arguably, the most beneficial aspect of the system is that it is a single solution.

Consisting of two components—BetterHealth exchange and BetterHealth record—the product acts as a document manager: It accepts, identifies, and files every piece of data it receives. The data can come in any form. Anything currently recorded or noted in a paper file—including captured images or links to other relevant information—can be accommodated.

BetterHealth exchange acts as a document clearinghouse. Facilities working with BetterHealth send their information to it, and the information immediately is routed to the appropriate source. On the receiving end, BetterHealth record is a complete EHR solution that accepts the electronic data and categorizes it accordingly.

Once in BetterHealth record, not only is the data put in its appropriate place—a pathology report in the corresponding patient’s file, for example—but it becomes a searchable database.

“What makes BetterHealth record unique is its architecture; it is a very granular EHR. Every data element is an object in and of itself, so there is no predefined record layout or database segment,” Kemery explains. Because of this, queries can be as general or as specific as the user chooses. “‘Last name’ is an object, ‘first name’ is an object, ‘diagnosis’ is an object, ‘report’ is an object. Actually, ‘report’ can be text, or it can be a link to an external document on someone

else’s database on another computer somewhere else in the world. It doesn’t matter to us, because the attributes tell BetterHealth record how to handle it.”



Robert A. Ruggiero, MD, FACS, senior partner of Main Line, uses the BetterHealth system.

Managing the flow of information through one Web site instead of many is a definite advantage—to some physicians. Others choose to get only some information sent to them through the system, which can be upgraded to meet the facility’s needs and comfort level. If so desired, BetterHealth can provide a totally integrated EHR solution allowing all dictated notes, external reports, lab results, instrument interfaces, images, scanned documents, and direct dictionary-based data capture to be incorporated directly into the patient’s record.

Requirements for installing BetterHealth are a computer (laptop or desktop) and an Internet connection. Training requirements are negligible, and, once in place, it has little to no impact on the user’s established workflow.

Streamlining at Main Line

BetterHealth recently forged a partnership with Main Line Diagnostic Imaging and Women’s Center, a group of three private, physician-owned outpatient full-service radiology centers located in Bryn Mawr, Downingtown, and Malvern, Pa.

“More and more, people are talking about EHRs, and this puts us at the cutting edge, because we are one of the first outpatient radiology centers in the area to be able to offer this type of service to our physicians,” says Barbara Atherholt, director of marketing at Main Line. “In the future, patients will have access to their own records, and this is a vital next step to allowing that to happen.”

Main Line is using BetterHealth technologies to deliver reports electronically. The system mirrors the prior report process

in which reports were dictated, transmitted electronically for transcription, then forwarded to the physician via fax. With BetterHealth, the report doesn’t end up as one more piece of paper to file; it is entered into the patient’s file instantly and automatically.

As part of their collaboration, BetterHealth is being provided to Main Line’s physicians as a complimentary service. In addition to speeding up and improving the accuracy of the report-delivery process, being able to provide this type of EHR solution has helped increase Main Line’s referrals.

“It’s a win-win for everyone. The providers save the cost of faxing documents and managing follow-up calls, and physicians’ offices benefit because they handle less paper and things aren’t lost,” Kemery says. “They’re just there, neatly organized by category in a patient’s chart.”

BetterHealth currently is working with Main Line to make it possible for the imaging centers to take advantage of other available features. The current implementation deals only with the radiologist’s reports. Once the next phase is complete, Main Line’s physicians will be able to view study images with the imaging center’s specialized viewer. Images themselves will not need to be stored redundantly in the facility’s computer system.

In addition to improved report delivery, the arrangement with BetterHealth presents another benefit to Main Line’s referring physicians. “A lot of the physician practices use paperless programs or believe in the concept; they do not want paper,” Atherholt says. “With BetterHealth, we still have an electronic delivery system so that once the report is transcribed, it is sent directly into the patient chart and there is no paper.”

Main Line also is giving its clients access to a “try before you buy” scenario. “The facility is giving its customers an opportunity to try their hand at document management and, ultimately, an electronic health record, without the up-front investment, worry, and fear that most physicians’ offices have around it,” Kemery says. “The physician has an opportunity to explore and move very gradually into a full EHR should they decide to, as they learn and become more confident.”

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