

Radiology group improves operations by automating

By Barbara Mortellaro

Austin Radiological Association in Austin, Texas, one of the largest private radiology groups in the country, reads about 1.8 million imaging studies a year for 21 hospitals and 44 service providers.

Of the nearly 2 million exams its doctors interpret, about 164,000 are breast exams, including 2-D X-ray, breast tomosynthesis, ultrasound and magnetic resonance imaging. ARA's radiologists who specialize in breast imaging read the studies for a number of hospitals and women's imaging facilities in the region.

Austin is a "growing and highly competitive environment," said **Todd Thomas**, chief information officer at ARA. It exceeded 2 million residents in 2016. In this fast-paced, growing environment, it is critical that ARA stay on top of developments in breast imaging procedures and screening follow-up protocols.

"That's a must if we want to remain competitive and provide our growing client list with efficient and timely remote mammography reading services," Thomas said.

Reading that many breast exams daily as quickly and efficiently as possible posed workflow challenges for the radiology group's telemammography reading services. It found the answer to these challenges by implementing workflow software and automating its processes.

Ensuring timely and accurate fetching, delivery of priors

One of the biggest challenges ARA had was that its system for retrieving prior mammography exams from different PACS archives and sending them to the appropriate reading workstations wasn't automated.

"We had numerous workarounds for manually querying prior exams and manually sending them to the appropriate workstation," reports **Brandon Redden**, PACS analyst at ARA.

Because of its volume of work, the process was very time-consuming. Also, because its radiologists read at three different locations, they had to search five different distributed PACS archives for relevant prior exams.

Yet another significant issue: human error.

"Because it was a manual process and because we were reading 600 to 700 requests daily, the potential existed for historical studies to be overlooked, or the wrong studies to be accidentally retrieved," Redden said.

About four years ago, when ARA's daily volume was about 400 studies (and it did not yet have Hologic's 3-D mammography technology), ARA invested in imaging workflow technology to automate the process of fetching prior 2-D screening and diagnostic mammography studies from across its five PACS archives. Today, this automation encompasses all breast tomography studies as well.

"Since we implemented imaging workflow automation, we can ensure that all newly acquired 2-D and 3-D mammography studies are delivered to their appropriate Hologic reading workstation, and that they are archived on the central ARA PACS," Redden said.

All relevant prior exams are retrieved from the five PACS archives and are automatically distributed to the appropriate location to support ARA's diagnostic reporting process, he said.

In addition, ARA sometimes needs the workflow solution it implemented in 2013 to normalize selected patient demographic data that is included in the fetched prior studies. For example, sometimes prior studies coming from one of the outside PACS may need its patient identification (medical record number) updated before it can be forwarded to the workstation where it needs to go, Redden said. Having a workflow system that can do this step automatically is very helpful, he said.

Meeting evolving needs

Since automating its workflow with software, ARA has seen several other benefits as well, including making better use of its staff's time, Redden said. ARA has 103 full-time radiologists.

"We have been able to reallocate approximately 1.5 full-time equivalents to enhance other valuable aspects of our services," he said. "The software solution has enabled us to be more efficient and productive with our clinical and IT resources. Being able to reallocate human resources since automating our pre-fetching process is a great case in point."

The software also enables ARA to ensure that not only are prior studies delivered to the appropriate workstations in a timely and accurate manner, but the same is true of any new studies as well.

"Because our radiologists read mammography studies on three Hologic workstations in three different locations, they depend upon the robust routing rules of the software solution we implemented to ensure that all correct studies are delivered in a timely fashion to the correct location," Redden said.

The hospitals and women's centers that ARA radiologists read for are very appreciative of its accuracy and fast turnaround time because, in turn, it means that the centers can inform their patients of their results sooner and with greater confidence, Redden said. The bottom line is being able to deliver quality care quickly, and this simple software solution

does all that and more, Redden said.

About the author:
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Automated After-Hours Workflow Ensures Quality Pediatric Reads Around-the-Clock

Austin Radiological Association (ARA) is one of the largest private radiology groups in the country. With about 103 board-certified radiologists, most with subspecialty training, ARA ranked No. 7 in full-time equivalents (FTE) and No.



2 in procedure volume in the 2016 Radiology 100 Largest Private Radiology Practices List by Radiology Business. ARA operates 17 outpatient locations throughout Austin and Central Texas and provides reading services for 21 hospitals/44 service providers. ARA also has a strong relationship with a large number of insurance carriers and managed care providers. ARA is a member of Strategic Radiology, a national coalition of clinically advanced and geographically dispersed radiology practices that aligned to advance quality in radiology. Members share data and best practices, consolidate certain practice expenses, and improve the value of patient care. "Excellence in imaging" is ARA's stated goal.

ARA's imaging centers offer every exam from mammography to MRI. ARA also has specialty centers for women and pediatric patients. Its Children's Imaging Center in Austin offers 1.5T MRI, fluoroscopy, ultrasound and X-ray. ARA also reads for DELL Children's Medical Center of Central Texas and St. David's Children's Hospital, both in Austin.

24/7 Pediatric Subspecialty Reading

ARA partners with Strategic Radiology to support pediatric radiology coverage between the hours of 10 p.m. and 8 a.m. Strategic Radiology contracts with Diversified Radiology of Colorado in Lakewood, Colorado who has three pediatric radiologists who perform the image interpretation during the nighttime hours.

ARA's overnight pediatric service reads about 12,000 pediatric studies annually. "We strive to provide a 30-minute report Turnaround Time (TAT) for all pediatric emergency

"Laurel Bridge solutions enable us to provide a high quality pediatric subspecialty reading service to our customers 24/7."

Todd Thomas
CIO

room cases and 60-minute report TAT for all inpatient pediatric studies," says Julie Wesselman, Director of Hospital Relations at ARA. "This is a very aggressive timeframe that requires our IT systems to reliably support efficient imaging workflows."

An Integrated Workflow Approach

Two imaging workflow solutions from Laurel Bridge Software Inc. help ARA meet its clients' pediatric needs and its commitment to short TATs. One is Compass; the other is Navigator. ARA uses Compass to send both new and historical studies from its pediatric clients' PACS to Diversified Radiology's PACS to be read. Diversified Radiology's PACS is an external PACS, not managed by ARA. "It is important to delivering on our promises that we have this capability," says Todd Thomas, ARA's CIO. ARA uses Navigator to retrieve the pediatric patients' historical studies from five different PACS archives and send them to Diversified Radiology's PACS. "Navigator actually fetches studies from one customer's external PACS archive," Thomas says. "The other PACS archives are internally managed."

Compass and Navigator work in tandem to ensure that the workflow is reliably fast and easily monitored. In 2012/2013, ARA expanded its use of Navigator to support mammography pre-fetching, "but we found the expansion has been helpful in turning around our pediatric caseload as well," Thomas says. "By automating the process across the numerous, disparate PACS archives we have to manage, we can guarantee that the right imaging studies get into the hands of the appropriate clinicians at the right time," says Brandon Redden, ARA PACS Administrator.

Benefits to Austin Radiological Associates

ARA sees clear benefits of using a comprehensive solution from Laurel Bridge for meeting its workflow needs. Says Thomas:

- "It enables us to provide our customers a high quality pediatric subspecialty reading service 24/7.
- It enables ARA to meet our Turnaround Time commitments for overnight pediatric imaging exams while minimizing our FTE staffing requirements.
- And, it enables ARA to leverage the subspecialty resources in other practices that are part of the Strategic Radiology consortium and avoids the additional cost of having to hire our own overnight pediatric radiologists."

No doubt Laurel Bridge Software contributes greatly to ARA's ability to stay ahead of the rapidly changing needs of its pediatric clients, Thomas says.