

Automated Structured Reporting Workflow:

Opportunities to Improve Staff Productivity and Patient Care

Key Results

- Sped radiologists' reporting process
- Improved data accuracy and completeness
- Fostered radiologists reliance upon automated workflow

Complexities of a National Organization

RadNet, the largest outpatient imaging center chain in North America, employs over 500 radiologists reading at over 350 locations. RadNet grew rapidly through acquisitions, which created significant variability across their national organization in how structured measurement data is gathered and communicated to the radiologists. This variability was multiplied by the hundreds of Ultrasound and DEXA scanners in use at RadNet facilities.

"Any time data management and workflow can be automated, and human intervention eliminated, data accuracy improves significantly. Altamont is helping us automate clinical workflows that improve the productivity of our clinical staff and the quality of our services."

—Ranjan Jayanathan, Chief Information Officer at RadNet



Manual Workflow Challenges

The Goal: Automate the capture, organization, and insertion of structured measurement data from Ultrasound and DEXA into the radiologist's report.

Ultrasound Complexities

Ultrasound technologists are challenged with performing a comprehensive set of measurements for each clinical exam correctly which are documented into the radiologist report. These challenges are significant in ultrasound because of the many scanners RadNet owns from numerous vendors, running various software versions that format structured report information in different ways.

Across such a large organization as RadNet, there is also tremendous variability in ultrasound tech workflow. For example:

- Some technologists documented measurements on paper that were then handed to the radiologists to dictate into the report
- Some technologists manually entered measurements into the RIS
- Some technologists wrote measurements on a worksheet that was then scanned

In all cases these manual workflows reduce technologists' efficiency, take time and focus away from patient care and increase the risk of human error in the measurement data. In addition, this inconsistent workflow created challenges for the radiologists responsible for reading and dictating these exams. Measurements on hard-copy paper as well as scanned measurements require the radiologists to manually dictate the measurements into their clinical report. Measurements that are manually entered into the RIS can automatically flow into the radiologists report, but there is a risk they were incorrectly entered into the RIS by the technologist.

DEXA Automation

Although some existing DEXA machines automatically perform measurements and communicate them electronically to the RadNet RIS, the radiologist was still required to manually dictate missing measurement values into the clinical report template. Other systems had no connectivity, and radiologist had to dictate every value. With automated structured report workflow this manual dictation step was eliminated, thus improving efficiency and quality.

National Standardization

RadNet utilized manual workflows for the reporting of structured report data prior to implementing Passport SR from Altamont Software. The goal of this implementation was to standardize and automate the capture and insertion of quantitative ultrasound and DEXA measurements into the radiologist's clinical report.

RadNet has been using Passport SR for ultrasound for about two years at over 150 sites across the country. More than 500 ultrasound machines are sending Structured Report data for various clinical exam types. RadNet started using Passport SR for DEXA early in 2023 and continues working towards national standardization across both modalities.

Workflow Automation Benefits

Implementing Passport SR in ultrasound has enabled:

- Technologists to improve their efficiency, stay on schedule, and realize a better quality of life at work
- Radiologists to speed their reporting process
- The correct measurement data to be transposed into the radiologist's clinical report

Radiologists have since developed a reliance on the automated workflow that inserts the measurement data into their clinical reports. As a result, radiologists have expressed they are reluctant to dictate an ultrasound study if the automated workflow is down.

Implementing Passport SR in DEXA has enabled:

- The capture of more clinical data than might otherwise be captured manually
- The elimination of dictation or manual entry of DEXA measurements by the radiologist
- Data from the DEXA scanner to automate the insertion of key phrases from the RIS into the radiology report, to further increase radiologists productivity
- A strong justification for upgrading older DEXA systems to support this new automated workflow

"Radiologist ultrasound reading efficiency has improved by an estimated 25% since implementing Passport SR. Given the large number of ultrasound studies we perform daily, this has significantly improved our overall productivity."

—Ashley Repp, Director of Ultrasound, Western Operations at RadNet

Common Benefits to Clinical Quality

Increased data accuracy and reduced medical errors by eliminating:

- Risk of radiologists accidentally dictating measurements incorrectly
- Risk of the technologist transposing measurements incorrectly

In addition to improving our clinical productivity, Passport SR has helped improve the accuracy of the clinical data in the radiologist report, notes Alex Kotani, Diagnostic Reporting Technologies Specialist at RadNet. "We have realized a 27% reduction in ultrasound-related clinical data errors since implementing Passport SR."

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Other clinical areas being explored:

AI Applications

The RadNet team is also exploring the automated management of results coming from AI algorithms. While still in the early stages and not yet implemented in clinical practice, they are implementing a Cardiac Echo workflow at a new cardiovascular center in Arizona.

The goal is to automate the entire workflow data chain from the modality to the AI algorithm to an electronic form to Passport SR and finally inserted into the radiology report.

Dose Data Management

Another clinical area where RadNet is planning to implement Passport SR is the capture of CT and Fluoroscopy Dose data. Currently, the technologists are manually typing dose measurements into an electronic form in the RIS which is automatically passed to the radiology report. This creates the opportunity for the technologist to inadvertently enter the wrong value and takes their attention away from patient workflow.

