

MarinHealth Improves Radiologist Productivity and Report Quality by Automatically Integrating Structured Measurement Data

Background

MarinHealth Medical Center is a 235-bed full-service, acute care hospital that serves the people of Marin County, north of San Francisco, CA. MarinHealth had been using 3M™ M*Modal Fluency Direct to speech enable their Hyland OneContent EMR and later adopted 3M™ M*Modal Fluency for Imaging across radiology as part of their continued effort to standardize on 3M solutions throughout their enterprise.

Once MarinHealth settled into the new 3M Fluency for Imaging solution, new opportunities were identified to further improve radiologists' reporting workflow by automating certain data intensive processes. The following three clinical scenarios were addressed:

1. CT Dose Reporting
2. DEXA Reporting
3. OB/GYN Ultrasound Measurement Reporting

Common Challenges

All three use cases required manual insertion of quantitative measurement data into radiologists' reporting template. The staff at MarinHealth knew that eliminating the manual steps in the process could save radiologists time and improve report accuracy. The radiologists' current process of manual data entry not only created a distraction from the process of clinical

interpretation but also introduced the potential for information to be transposed inaccurately. To address these concerns and automate these processes, MarinHealth was able to tap into the collaboration between 3M and Laurel Bridge Software.



CT Dose Reporting

In California, every CT scan requires two dose values to be included in the radiologist's report. MarinHealth employs clerical staff to review all reports for completeness. If they find that a dose value is missing, the report is sent back to the radiologist so the missing value can be added. Such interruptions break the radiologist's concentration and reduce productivity.

MarinHealth implemented the Compass™ Routing Workflow Manager from Laurel Bridge Software to automatically extract the two CT dose values from the CT DICOM data and insert them directly into the correct fields in the 3M Fluency for Imaging report template. This process has been fully automated for all studies coming from multiple CT scanners.

DEXA Reporting

At MarinHealth, the DEXA reporting workflow is similar to the CT dose reporting workflow, although a DEXA report includes many more body part measurement values that need to be captured. Because of requests from referring physicians, the DEXA project evolved into two parts:

Part 1: An automated DICOM Structured Report (SR) extraction and insertion workflow process was developed using the Compass™ Routing Workflow Manager. Compass automatically populates the DEXA measurement data in the 3M Fluency for Imaging report template and eliminates the need for radiologists to manually dictate the large amount of DEXA measurement data. MarinHealth has found that this automation has reduced the radiologist's dictation time for each DEXA study by approximately 20%.

Part 2: Create a DEXA multimedia report by combining the radiologist's report with the DEXA images and quantitative report.

DEXA Multimedia Report

At MarinHealth, the DEXA report information typically resides in multiple locations. The radiologist's text report is located in the EMR while the images and data produced by the DEXA device are stored in the PACS. This forces the referring physicians to log into multiple systems if they want to access and view all the clinical information. As a workaround for one referring physician, the women's health center agreed to have the DEXA technologist print the DEXA report data and mail it to their office. However, the routine process involves sending only the radiologist's report to the referring physician.

"The integration between Laurel Bridge and 3M has reduced the radiologists DEXA reporting time by approximately 20% per report while facilitating greater accuracy."

John Pierce
PACS Engineer
MarinHealth

Over time, the women's health center received an increasing number of requests from referring physicians to combine all the DEXA information into a single report. Once this caught the attention of the head of radiology at MarinHealth, they began working with 3M and Laurel Bridge Software to develop a better solution.

Laurel Bridge subsequently developed an automated process that combines the DICOM images and report with the radiologist's HL7 transcribed text report into a new multimedia PDF report. The DEXA multimedia report is then made available to the EMR for inclusion in the patient's file, where it is easily accessible by all referring physicians.

OB/GYN Ultrasound Reporting

This forthcoming project will focus on automatically extracting and mapping the numerous OB/GYN ultrasound measurements into report templates. Like the other two projects, the automation will help reduce report turnaround time and improve radiologist reporting accuracy by enabling them to focus on the image interpretation.

Benefits of Automation

Since implementing 3M Fluency for Imaging, radiologists have experienced the need for fewer corrections and rework, which has positively impacted reporting efficiency and accuracy. This is attributed to the embedded artificial intelligence (AI)-powered Computer-Assisted Physician Documentation (CAPD) functionality of 3M Fluency for Imaging, which delivers proactive and high-value insights to the radiologist within the reporting workflow.

The ability for Laurel Bridge Software to create a new DEXA multimedia report has improved referring physician satisfaction and productivity. Both are factors that attract referring physicians by giving them the information they need to better care for their patients.

In addition, the newly automated processes implemented by Laurel Bridge Software have improved the following:

- Radiologist and clerical staff productivity
- The quality, consistency and accuracy of every radiologist report
- Clerical staff utilization for report Q/C

About Laurel Bridge Software

Laurel Bridge Software provides enterprise imaging workflow solutions that solve complex, mission-critical imaging workflows that often arise when multiple business entities and their disparate clinical imaging systems must be unified. Our solutions reliably ensure new and historical DICOM imaging studies, HL7 messages, and non-DICOM objects are available to the clinical staff, at the point-of-care.

Laurel Bridge's imaging workflow solutions are implemented at thousands of healthcare facilities, teleradiology service providers, and radiology group practices in more than 35 countries, directly and through integration partners.

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