

PORTAL EXCLUSIVES

Practice develops fax-to-DICOM solution



Although IT is becoming more ubiquitous throughout the healthcare enterprise, there are still many physician practices where the deployment of information systems is rudimentary, at best. As such, diagnostic imaging interpreting physicians—particularly those who interpret images from remote sites—are routinely challenged by patient information delivered in a non-digital format.

“Radiologists, the physicians who interpret these images, often encounter a key challenge in the interpretation of these remotely acquired images: patient imaging examinations cannot be interpreted in a vacuum without ancillary clinical information regarding the patient whose examination is being interpreted,” wrote the authors of an article published online before print in the *Journal of Digital Imaging*.

“Specifically, accurate interpretations require the radiologist to be aware of all patient information submitted by the referring physician, the patient, and the written notes by

the technologist who performs the imaging examination,” they noted.

The obstacle faced by the authors to incorporate this critical information into their PACS was twofold: obtaining the data from a disparate group of referring physicians with varying levels of IT deployment; and automating its input and associating it to a patient in the PACS.

“Knowledge and understanding of the technological and financial resource limitations of our client subscribers in a very real sense served as a blueprint for the design of our software and its workflow requirements,” the authors wrote.

They decided that they had to make their application usable with common and inexpensive equipment that could be found in the front office of any imaging center. In addition, the software had to be designed in such a manner that it could be successfully utilized by the lowest common denominator of computer knowledge of among client imaging center employees.

In response to these parameters, they developed the DICOM fax adder (DFA). The application allows the direct faxing of any number of paper sheets containing clinical data directly into the PACS/DICOM imaging examination for any patient EXAM present on the group’s central server.

The software consists of two applications that work in tandem with one another: a DICOM Query (DQ) component and an AutoSend (AS) tool, according to the authors. The software workflow is initiated by the arrival of an imaging exam on the practice’s DICOM server, which is monitored by the DQ.

The DQ tool stores DICOM header information from the exam in a database for later retrieval by the AS component and it also generates a bar-coded fax cover sheet, which is automatically delivered to a fax machine at the exam origination site.

“The client site employee simply matches the cover sheet with the proper patient paperwork and faxes it back to our fax server where it is processed by AS,” the authors wrote.

The processing by the AS tool consists of decoding the barcode and transforming the fax image format into the DICOM format. According to the developers, the data is then associated with patient in the PACS, where it is treated as another series belonging to the patient’s exam.

“When the teleradiologist opens the case for interpretation in his/her image viewer, the first images seen are the clinical paperwork followed by the actual imaging examination,” the authors wrote.

The team noted that the DFA application has been a significant value-added enhancement for its referring clinician base and that its deployment has successfully enabled the evaluation of all a patient’s pertinent clinical data at the same time as their images are interpreted.