

VIEWPOINT

# Quality Matters

## Teleradiology's need for a QA program

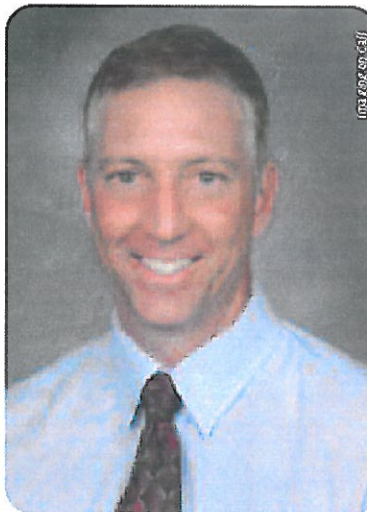
**IN THE LAST DECADE**, the emergence of large teleradiology groups has fueled a paradigm shift in the practice of radiology. Remote outsourcing has become the mainstay of after-hours radiology services across the country. According to a survey conducted at Yale University School of Medicine, New Haven, Conn., more than 50 percent of groups are now contracting for outsourced interpretations. Certainly, this trend is destined to continue as teleradiology providers continue to adapt and broaden their range of services.

Once relegated to preliminary ER reports, teleradiologists are now emerging as talented subspecialty readers in demand for high-end newer applications, such as breast MRI, cardiac CT angiography, virtual colonoscopy and PET.

Furthermore, teleradiology groups now offer value-added services beyond interpretations, including remote processing, IT support and technologist training. At a time when radiology is battling on many fronts for imaging turf, teleradiology utilization presents a prime opportunity to provide excellent service to our referring physicians and improve patient care.

Teleradiologists, however, cannot accomplish this alone. The best model for success requires support and oversight by the traditional "bricks and mortar" practices. Teleradiologists should be seen as an extension of a group practice and their success will require the foundation of a sound radiology department. Well-trained technologists, updated equipment, current imaging protocols and operational efficiency are all essential components for a department to establish before considering the implementation of teleradiology outsourcing.

With these prerequisites, the addition of teleradiology can be a tremendous enhancement to patient care in any hospital or radiology practice. Of course, however, this assumes that the teleradiology



David Cohen, MD

group is capable of providing quality service and interpretation, which is not always the case.

### Selection Is Key

The teleradiology industry is certainly not immune to the edict of "buyer beware." Predictions that outsourcing will weaken our field will certainly prove true if radiologists do not take responsibility for oversight of the remote readers they hire. At the outset, discussions regarding quality assurance (QA) should be of paramount importance when interviewing a teleradiology group.

Unfortunately, industrywide standards have not been adapted and the American College of Radiology has been remiss in specifically addressing this issue, instead choosing to focus on the technical equipment requirements and legal/reimbursement concerns.

As the quality assurance officer for a medium-sized teleradiology group, I can attest to the laborious and costly process of continuing quality improvement (CQI). This is particularly true for preliminary interpretations which, unlike final reports, are always over-read by a second radiologist. In this regard, however, preliminary reporting is well suited for a very thorough quality program if one is willing to devote the resources.

In our teleradiology group, we begin by encouraging our client hospital groups to submit all discrepancies that they encounter when over-reading a preliminary report. We provide easy-to-use forms with a discrepancy rating system modeled after the RADPEER ACR template. With this system, we require that all "misses" be reported and assigned a rating based on severity and the potential for adverse patient outcome. These forms can be faxed or e-mailed into our main office. Some providers also offer online submission. Regardless of the method of notification, it

BY DAVID COHEN, MD

would certainly be a red flag if a potential teleradiology company does not volunteer a simple means for encouraging and reporting diagnostic errors.

An important component of any QA program is the process for reviewing submitted discrepancies. The easiest, but least effective, approach would be to simply have the clerical staff forward the miss notification directly to the reading teleradiologist. Although utilized by some teleradiology providers as a "QA program," this "FYI" type of notification should not be acceptable to any group wishing to ensure a quality product for their hospital.

Instead, one should expect a CQI program to be a coordinated system for objectively evaluating error and accumulating data. Typically, this consists of a quality committee that reviews cases and renders an official evaluation of each discrepancy. Ideally, in order to maintain objectivity and credibility, the quality committee should include third-party independent reviewers with subspecialty expertise. The committee's report is then provided to the teleradiologist, as well as the submitting hospital radiologist. This is an expensive and operationally challenging process but should become the standard for teleradiology quality assurance.

If a prospective teleradiology company balks at dedicating the resources to maintain the integrity of their QA program, one should be concerned with their true commitment to quality.

The next component of the program should be a plan for how the teleradiology firm will handle the accumulated data from the reporting and reviewing process. Considering that a busy teleradiology practice may read more than 200,000 cases per year, the mechanism for storing and monitoring this data must be robust.

In our group, a quarterly report is generated, which lists the QA statistics for each individual reader in the practice. A quarterly report is also generated for each client with the statistics on misses reported by their group and the outcomes after committee review. This serves as benchmark data that can be used internally to monitor quality, but it is also a means for clients to compare quality outcomes across the teleradiology industry.

It should be within the realm of expectation to ask your teleradiology company for such a report, preferably before making the decision to hire. An important element of the data management is implementing a process for detecting trends as they occur, rather than in retrospect – the goal being to promote patient safety by identifying potential problems before they accumulate over an entire year, or longer.

Often, early intervention and radiologist education can help to avert a future adverse outcome.

## Troubleshooting Errors

The final component of the QA process is developing a policy to address deficiencies in performance. There are many factors which may contribute to diagnostic errors in interpretation. While training and experience are likely the most important variables, other factors, such as work environment, workstation viewing equipment, fatigue and speed, often contribute. Preferably, data on reported misses should include information regarding all these variables.

For example, the time of night an error occurred, the number of cases read, and details about the work environment are all

important to note. We have found that often adjustments in a teleradiologist's shift or equipment can improve performance. In some cases, a period of probation may be appropriate with return to reading contingent upon completion of continuing medical education or additional coursework specific to the identified area of weakness.

The independent expert reviewers can also be a very effective means of education by providing helpful tips or advice as a part of their QA report. Of note, in evaluating our internal data, we found that speed of reading was inversely related to accuracy for most readers. In other words, the faster readers tended to have less diagnostic errors.

It is my hope that in the near future, quality assurance programs for teleradiology will be a more transparent process, explicitly defined and presented to prospective clients. There are many teleradiology companies providing excellent quality interpretations, and I would urge them to publish their data and processes in order to establish benchmarks for the teleradiology industry.

Presently, the literature is deficient in this area, as there are no publications to my knowledge specifically evaluating the accuracy of teleradiology. Yoon et al., retrospectively, compared interpretations for trauma abdominal and pelvic CT exams between general radiologists and subspecialty over-readers within their practice. They reported a 30 percent discrepancy rate.

In a similarly designed study, Erly et al., studied discrepancies on brain CT exams between general radiologists and neuroradiologists. They found a disagreement rate of 5 percent. In addition, several articles can be found comparing disagreements between radiology residents on call and the final attending physician's interpretation. In our own evaluation of internal QA data, we have found an average discrepancy rate of less than 1 percent for preliminary interpretations.

The message here is that quality matters. Ultimately, it is the responsibility of the radiology community to assure that teleradiology groups adhere to the same quality standards as practices. When choosing a teleradiology provider, specific discussions about the CQI program should not take a backseat to convenience or negotiations on price. If radiologists fail in this regard, or delegate oversight to hospital administration or non-radiologist physicians, an opportunity to greatly improve patient care will have been missed.

## References:

Erly W, Ashdown B, Lucio II R, Carmody R, Seeger J, Alcalá J. "Evaluation of Emergency CT Scans of the Head: Is There a Community Standard?" *Am. J. Roentgenol.*, June 2003; 180: 1727-1730.

Yoon L, Haims A, Brink J, Rabinovici R, Forman H. "Evaluation of an Emergency Radiology Quality Assurance Program at a Level I Trauma Center. Abdominal and Pelvic CT Studies" *Radiology*, July 2002, 224: 42-46.

**David Cohen, MD, is chief radiologist of Imaging on Call (www.imagingoncall.net) in Poughkeepsie, N.Y. Questions and comments can be directed to editorial@rt-image.com.**