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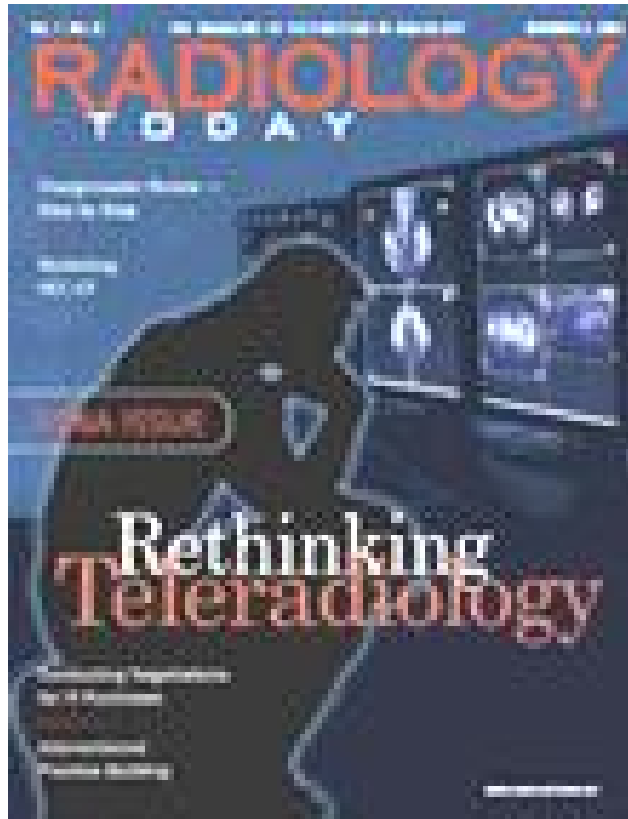
Rethinking Teleradiology
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Cliches about the difficulties of recruiting and keeping qualified radiologists in remote rural areas remain overwhelmingly true. Despite generous relocation packages and signing bonuses, many large regional hospitals and imaging centers find themselves going months or years without hiring. Worse, they may struggle with revolving door turnover, continually breaking in yet another freshly minted young radiologist who will stay only as long as absolutely required, without ever putting down roots or becoming a true community member.

One young group taking a new approach to this long-standing problem is qHS Teleradiology Partners, LLC. Since March, its unique mix of on- and off-site radiologist coverage has been shaking up the accepted models of two traditional solutions for short-staffed imaging departments: teleradiology and locum tenens.

“Rather than a group that hires an off-site service to do a small percentage of their work, we’re an off-site service that hires on-site people to do a small percentage of our work,” says qHS founding partner W. Ross Stevens, MD. “So instead of bringing the radiologists to the work at a central reading location or maybe in the physicians’ homes, we bring the work to the radiologists.”



Teleradiology Partnering

Stevens and fellow founder Ronald V. Hublall, MD, emphasize that the concept of partnership is key to the services qHS provides.

“We like to think of it as being a partner in a group practice,” Stevens says. “It’s a virtual group. We’re all members of that group, some working on site and some off site at various times. The only difference is that we’re connected with phone lines and the Internet rather than at a physical location.”

Hublall adds, “Every client’s imaging problems become our group problems and we try to provide customized solutions for the big picture. We like to be able to participate in making recommendations, bringing our information and our experience to the particular situation.”

The two can bring plenty of expertise. They met at Southern Illinois University eight years ago, when Stevens was assistant program director during Hublall’s residency. Stevens subsequently became program director, while Hublall worked in private practice after his residency and then ran a locum tenens company. In addition to his academic practice, Stevens worked in a private group of 15 radiologists. Both had a vision of using PACS-based networking to expand radiology coverage—and both encountered resistance

from their respective practice partners when they broached the subject. That led to them to team up to create qHS, now headquartered in Overland Park, Kan.

The company offers straightforward image interpretations via the Internet, including traditional overnight batch reading and reporting. The qHS radiologists handle nearly every modality; the exceptions are digital mammography, primarily because few facilities are equipped for it yet, and fluoroscopic procedures. qHS can provide transcription services if needed or will work with the client's transcription provider to generate the full range of reports from preliminaries through finals. Turnaround time for preliminary reports is as low as 30 minutes, and for full reports, four to six hours. But what makes qHS unique is its emphasis on building personal relationships, primarily by providing regular on-site coverage from a qHS radiologist.

According to Hublall, each client's unique requirements necessitate "a more holistic approach" than most teleradiology services provide to customize just the right blend of network reading and on-site hours. That's where he and his partner draw on their individual and joint experiences. For example, he says, after doing so much locum tenens, "I've seen multiple problems solved different ways. I've learned which answers can be equally effective to certain problems—and when they're often not. You learn how to take the good ideas and apply them to different situations with the appropriate variations."

On-site coverage is highly individualized. Some clients want on-site coverage only to cover regular staff vacations or to close staffing gaps during an expansion period, but a common contract for qHS will include placing a radiologist on site one or two days per week or month with the remaining volume handled via teleradiology. Call it "reverse teleradiology," or as Stevens says, "a tele-locum."

He says, "We can put a radiologist on site to cover the workload you assign or we can put a server into your hospital and it's up to you whether you want to send us 20, 30, 50 films a day. Or we can do the full hospital or clinic solution, providing total radiology coverage for multiple departments."

'Reverse Teleradiology'

"A client can elect to send us so many films a day, or all the volume from a certain clinic, or a certain percentage of total volume, or even just certain modalities in any way they require coverage. And we'll contract to do that in a long-term contract, or weekly, or monthly, whatever they need," says Stevens.

The company ensures that a radiologist is available 24/7 to speak to clients via a toll-free number. Encouraging a continuing interchange and emphasizing accessibility is important to providing better medical care overall, says Stevens: "We don't like to be a black box." For example, technologists can call with questions about scan procedures or to walk through any immediate problems for a particular scan. Referring physicians can call with questions about the report or any part of the study.

For many short-staffed imaging facilities, the qHS price is certainly right. "For a locum tenens, you're looking at \$2,000-a-day salary," Stevens notes. "Then with hotel and airfare, another \$500 a day. And if you go through a recruiting company, tack on a separate fee. So say as much as \$3,000 a day." In comparison, he says, qHS may charge a final read price of \$60 apiece for CT studies. Thus a facility needing 30 reads per day would pay \$1,800 and eliminate most nonmedical costs.

Finding Physicians

Both doctors emphasize that the clinical proficiency they can offer is as important as any physical, technical, or financial considerations. All qHS radiologists are fellowship trained and certified by the American Board of Radiology, providing a depth of coverage that many smaller or geographically remote facilities would otherwise be unable to access or afford.

"We're not the typical radiology group that most hospitals are used to," says Hublall. "Most radiologists you may be able to find to travel on site are not going to have the fellowship or the subspecialty training that we have. We're able to add a new layer of expertise to [our clients'] reads."

Thus far, recruiting qualified radiologists hasn't been difficult. Says Hublall, "We get one to two calls a week from radiologists interested in working within our model. I've been very pleasantly surprised about that. I think more and more radiologists understand why we want our network-based people to also have an on-site identity. They know that we're not just a name at the bottom of a report."

From the radiologists' perspective, Stevens adds, the qHS approach can offer the best of both worlds: "We're seeing more radiologists who want to work part-time or who want to return to school or come out of retirement part-time. [In qHS], I don't have to travel and be away from my family." At the same time, he says, qHS enables physicians to develop ongoing relationships with client facilities and encourages two-way interaction. "The idea is that instead of choosing the people in a reading center to do the work, we send enough work to keep the person on site. I can be more efficient in my work, and in turn, more cost-effective for the clients."

Customized Client Solutions

Currently, qHS is working with facilities in Kansas, Missouri, Nebraska, Iowa, Virginia, Oklahoma, and Tennessee. Present qHS clients include mobile medical groups, hospital groups, and stand-alone clinics, for which the company provides various combinations of overnight service, daytime coverage, or hospitalwide coverage. Between them, the partners handle roughly 3,000 studies per month and Stevens anticipates that number to nearly double to a monthly 5,500 studies before the end of the year. The company is also in the process of screening, hiring, and credentialing more radiologists with plans to add as many as three more full-time physicians in that same time frame as pending contracts are finalized.

qHS is currently working to secure a major prospective client, the Carl Albert Indian Health Facility (CAIHF). The CAIHF is managed by the Chickasaw Nation and serves more than 190,000 American Indians living throughout central and southern Oklahoma. The CAIHF's main site is a 53-bed acute care hospital, encompassing an OB/GYN unit, intensive care unit, and a medical/surgical unit with four operating rooms, plus both a 24/7 emergency department and a Monday through Friday Emergency Fast Track clinic. The CAIHF also coordinates care with four general practice clinics, a family practice clinic, and a diabetes clinic.

In the middle of a major three-year expansion plan (which eventually will include a variety of new facilities housing new modalities), the CAIHF lost a radiologist and, unable to hire a replacement, turned to qHS. According to Hublall, the hospital alone generates approximately 24,000 radiology cases per year, with the outlying facilities each generating another 3,000 to 4,000 annually. Currently, qHS is helping the CAIHF convert all its sites to digital format, "so by the end, we'll be looking at probably 35,000-plus studies a year. Basically, we're [becoming] their full-fledged radiology department," he says.

Beyond Niche Markets

The CAIHF exemplifies the type of healthcare institution that finds qHS offers a better solution than traditional approaches. "My theory for the group is that we are filling a natural niche for many hospitals that don't have enough volume to make a full-time radiologist cost-effective," says Stevens. "The referring doctors are more likely to be general surgeons and primary care physicians. They don't have access to subspecialty radiologists and they want someone in the hospital, maybe more than one person but not quite two or three [physicians]. For practical purposes, they may need something like 1 1/2 or 2 1/2 radiologists. So we can really add value to their practice by covering their on-site needs plus their subspecialty needs."

Filling a natural niche doesn't limit the group to the most obvious teleradiology markets—small, often cash-strapped hospitals serving sparsely populated areas. One new qHS client is a multisite imaging network serving a major midwestern metropolis, which has exactly the same problem as its rural colleagues.

"Realistically, they need more than one but not quite two radiologists," says Hublall. "They have a radiologist at one place three days a week and at the other two one day a week, but they find that hampers them in scheduling. We can give them the coverage of two radiologists, but they don't have to give us the

volume for two radiologists. We can help them expand their coverage and keep the radiologists busy by bringing [other] work in remotely.”

Another growing qHS niche is mobile x-ray imaging companies, he adds. “One of our mobile clients has brought us into an innovative situation: They take the mobile units out to high school football games, and if a player gets injured, they take the images and process them right there, send the studies to us, and get the report back as soon as possible. So we make it possible for the triage doctors to get an immediate look at the injury on the spot.”

Putting the Network in Place

All qHS-deployed hardware and software components meet the American College of Radiology guidelines for teleradiology and are HIPAA- and Medicare-compliant. The backbone network for qHS services is CoActiv’s EXAM-PACS, which uses customized software to link multiple widely dispersed sites. Servers on both ends enable operating as an integrated system, with the client servers transmitting via 128-bit encryption directly to qHS servers hosted at one of CoActiv’s Tier IV data centers.

From an on-site workstation, study images are uploaded to the server for remote access. While images are stored on the qHS server only for short-term use, usually seven days, they can be archived in the CoActiv EXAM-Vault system, which provides quad-redundant storage in two mirrored data centers, as well as on redundant removable media. In essence, the system creates four discrete identical archives for stored images. Active storage involves using mirrored online hard disk arrays, keeping images available for an unlimited length of time in permanent online secure storage.

Far from being overkill, says Hublall, this extreme redundancy adds both reliability and security for clients. CoActiv, he notes, guarantees 100% uptime on its archive system, which qHS, in turn, offers its clients. “Technology hiccups are the greatest glitch [affecting] teleradiology, no matter whose system you use. That’s a major reason that we provide dual coverage, regardless of the client’s communication capabilities. We’ve tried to ensure that every single step of the way we have redundancy where it’s needed.”

For reporting and worklist management, qHS uses StructuRad, a software package that provides templates, generates reports, and automatically faxes or transmits reports back to the imaging facilities. “StructuRad provides the order entry function so [clients] can log in on the network. It generates the order form to tell us what we need, whether we need to see an old study, and so forth,” explains Stevens. “A client technologist can log in to the StructuRad system to complete those instructions and we get our worklist from the same system when we log onto our CoActiv server. We generate reports through it and send the reports back to the facilities. And referring physicians can log in to see the reports online any time.”

The software also supports Web access to old reports in the qHS archives. “Any reporting that comes into us, we archive,” Stevens notes. “We have access to all the old patient records that we have generated. Although older studies for comparison are archived at the [client facility], they transmit them to us via the network servers.” Similarly, older reports can be uploaded for qHS use and made available either temporarily or stored long-term for repeated access, depending on the client’s needs.

Technical Support

Hublall says CoActiv was selected because of the vendor’s reputation for reliability and its flexibility—a combination he believes mirrors qHS’ own approach: “We’re going to go where the people will listen to us and actively help us solve problems.” Because qHS has found CoActiv so responsive to meeting unique needs, the partners also make PACS and network recommendations to their radiology clients and will even help clients design integrated solutions. He says helping clients make technology decisions is another important aspect of qHS’ partnership role.

“For instance, for one of our mobile imaging companies that is currently converting from plain film to digital, we’re providing recommendations on the PACS company and the dictation company and IT suggestions,” says Hublall. “We feel confident making recommendations to the companies we use because

we've done extensive research, checked references, and made site visits. Rather than going out and building a brand new team and going through all the typical glitches, it makes more sense to hire somebody who already knows their stuff and does it well."

He adds, "We try to deal with the direct source, to cut out the middle man. We find it creates responsibility and that's something our clients appreciate. We can rely on [CoActiv] to take care of the IT end of it and then we can take care of the medical end, with each one in this chain taking care of what they do best."

Hublall also helped cost-conscious CAIHF administrators review the respective benefits of multidetector CT scanners. "They were looking to buy a CT within the year, with the new hospital being completed about three years down the road. I updated them about what new CT technology might do for them and also from the point of view of what they don't plan to do. For example, 32- and 64-slice scanners only add a few highly specialized capabilities, like coronary CTA [computed tomography angiography], to the functions of [lower-slice] models. And if you don't plan to do coronary CTAs, you're not realizing the full potential of that very expensive machine."

As a result, the CAIHF decided to purchase an 8-/16-row CT system, erecting a separate building to house it. Hublall believes his input will help the CAIHF eventually save money and turnaround time, compared with sending patients to other facilities.

Expanding Expectations

The partners admit that the reaction to their mixed approach is similarly mixed. "When we talk to radiologists, our easiest sell are those who are familiar with overnight services," says Stevens. "Then we explain that in addition, only a few doctors will cover your site regularly, as opposed to, say, 50 radiologists at various times in the more traditional teleradiology service. And the qHS radiologist is going to come on to your site to meet you and work with you so you're all comfortable working together. At that point, more people get interested in the idea of trying something different."

On the other hand, Hublall points out, "we're honest about our drawbacks: We're not there every day to do outpatient barium enemas or upper GIs. We determine an appropriate amount of time to have a radiologist on site so that those kind of elective procedures can be done cost-effectively and we try to help them minimize the loss of convenience for scheduling on a particular day of the week." Thus far, he says, most clients haven't had a problem revamping scheduling. "They realize they're getting so much more in terms of care for their sicker patients that they weren't able to provide before, so they feel [reworking how they handle screening procedures] is not a significant compromise."

Stevens says, "Especially in smaller and rural areas, administrators by and large are very interested in the on-site/off-site mixture. They've been burned by the traditional approach—they've been looking for six months to hire a radiologist and can't find anybody interested in living there. Or they've been hiring locums to cover for a year. So they see the value almost immediately—better coverage, better control, and they don't have to worry about the hiring end of it."

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