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Seven Ways to Streamline Radiology

Faced with dwindling reimbursement, imaging practices are relying on I.T. to find ways to boost productivity, reduce downtime and keep their finances in order.

By Gary Baldwin



When it comes to reimbursement for imaging services, Charlie Owens, PACS administrator at the Knoxville-based University of Tennessee Medical Center, sings a refrain that has become an industry norm: it's going down, down, down. "Rates have really fallen in the last five years," he sighs. "If you're in a competitive area, payers put the squeeze on you."

By way of example, he cites reimbursement for a colonoscopy by the state's Medicaid program. Eight years ago, the payer reimbursed \$400 for the procedure. Today, it pays about \$90. Meanwhile, Owens faces another common dilemma. To stay competitive, the center must invest in the latest and greatest imaging equipment—while continually upgrading its storage. The medical center's PACS long-term imaging

archive, for example, stands at 58 terabytes, a massive amount of data which must be replicated in a back-up storage system for safety. "You're only protected if you have two copies," Owens says.

Faced with this across-the-board economic crunch, radiology practices across the nation have taken a variety of steps to stay afloat financially. Following are seven strategies.

Strategy #1: Streamline Referrals

Steve Fischer, the CIO at the Minneapolis-based Center for Diagnostic Imaging, describes the modern radiology practice as "a capacity game. You need to drive more volume. You are put into a sales environment—how do you get more orders coming through the door?"

The center—which owns more than 60 imaging facilities nationwide—functions as a management services organization for some 200 radiologists, dispersed among 10 otherwise independent group practices, who provide reading services. For its own centers, CDI performs about 500,000 annual studies, with even more work coming from other hospitals that contract with it.

To streamline orders from the primarily ambulatory group practices that serve as its referral base, the center, whose radiology information system, or RIS, is from Merge Healthcare, has built a direct interface to a number of EHRs. "We get orders directly from about 15 ambulatory EHRs, including NextGen, Epic and GE Centricity," says Fischer. "It's the advantage of having a single RIS." (For more on the interplay between EHRs and radiology, see

story, page 44). Only about 10 percent of the orders come in via direct interface, but Fischer says the portion is growing steadily. Results flow back automatically to the EHR as well, thus eliminating the need for fax. “We are starting to see a groundswell,” he says. For practices without an EHR, orders can be placed via a referring practice portal, which enables order tracking and results retrieval.

The portal is not used much, as practices find it easier to fax in their orders. But Fischer says it’s critical to offer referring practices the best service possible. That’s why CDI is beginning to function as a care coordinator for certain patients. “We go beyond the screening mammogram,” he says. If a negative finding occurs, CDI will initiate conversations with its referring physicians, and promptly schedule additional imaging. “The primary care physicians say ‘give us some help,’” he says. “This is not their area of expertise.”

Strategy #2: Boost Network Speed

Imaging Associates of North Mississippi Magnolia has a long name—and an equally broad technology footprint. Based in Tupelo, the 10-radiologist group practice serves four local hospitals with on-site physicians and two more remote facilities via teleradiology, says Cavett Otis, I.T. director. The group provides more than 150,000 annual studies. During the regular work week, its on-site physicians rely on the local hospital’s picture archiving and communications systems (PACS), which vary at each location. Imaging Associates loops all of its physicians to the remote hospitals using a wide area network and a common viewing platform, from Merge Healthcare. During the off-hours, rotating physicians on duty use the wide area network (WAN) to retrieve and read images from its core hospitals as well.

To connect to the local hospitals, the group uses a cluster of six T-1 lines, high-speed connection that delivers images quickly. Connecting to the remote hospitals, which have limited broadband availability, proved to be more problematic, Otis says. Two minutes were required to transmit a single X-ray image.

To remedy the situation, Otis turned to Circadence, a software vendor offering network optimization technology. Its software essentially repackages data packets and uses available bandwidth to its maximum capacity. Now an X-ray can traverse the network in 17 seconds. Since about 20 percent of Imaging Associates’ reading work flows across the WAN, the improvement represented a major productivity boost. The software also preempted the need to add additional T-1 capacity to the outlying hospitals.

Now physicians can retrieve images promptly regardless of their source. And the practice is considering expanding its staff by hiring some contract physicians who could tap into the network remotely. It toyed with that model last year, bringing on some temporary physicians who were finishing fellowships in other states. Otis is also trying to persuade one of his hospital sites to deploy the network-enhancement software for its own PACS set-up, which involves a shared system with yet another hospital. A system upgrade there has resulted in more sluggish response times, the anathema of the modern radiology practice, Otis says. “Everybody wants results right now,” he says.

Strategy #3: Embrace the Cloud

When it comes to managing a radiology practice, Rick Jennings is all about technology—and productivity. Jennings serves as chief technology officer at vRad, an Eden Prairie, Minn.-based company that doubles as both radiology group practice and software vendor. On the group practice side, vRad spans 421 physicians, who practice across the United States with major clusters in New York and Philadelphia. The physicians all use vRad’s software, a commercially available product that is based on the hosted, cloud computing model. About 1,000 radiologists use the commercial product, which combines PACS/RIS functionality, Jennings adds.

Regardless of where they work, vRad physicians can access images via the cloud set-up, in which the guts of the program reside on vRad’s servers, not on local hardware. Images from the local

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hospital PACS feed to vRad’s data center, which in turn distributes them to its physicians. “The case is routed to the doctor best able to read it,” Jennings says. He says that vRad clients have been able to boost their reading rates by up to 20 percent after implementing the technology, which enables radiologists to read images without the constraint of being tethered to a single hospital’s PACS. “You don’t have to be where the hospital is,” he says. “You can do case distribution in seconds.”

The reading platform includes an embedded voice recognition system, which Jennings describes as a prerequisite for the time-strapped radiology practices the company serves. By using macros, or pre-written report formats, radiologists can dictate a few simple words—usually for findings with no negative results—that populate the report with a standard narrative. Physicians can add more comments, and the system will highlight those dictated comments in a color screen font so they are visually distinct from the canned narrative. In emergency reading situations, vRad physicians can see an image, dictate, self-edit, and push the results back to the referring physicians—who access the report via a secure Web site, with an alert pushed to their device of choice—in a matter of seconds after opening the image file. vRad also runs a central call operation, where referring physicians can talk on the fly to the radiologist doing the interpretation.

According to Jennings, vRad’s own physicians perform about 27,000 annual reads each. Radiologists in more conventional group practice set-ups, which require accessing multiple PACS and who might be dispersed across physical locations without access to their peers’ workstations, might read 17,000 annually, he says. Even the call center operation figures in the productivity boost, he says,

because radiologists aren't waiting on hold or otherwise preoccupied trying to communicate with the physicians who ordered their service in the first place.

Strategy #4: Speed Turnaround

Radiologist productivity is also front and center for Owens, the PACS administrator at U-Tennessee. The radiology department includes 50 physicians, evenly split between attending and residents. Residents read images, but must always have an attending sign-off on the findings, he says. The department provides some 250,000 annual reads for the medical center, matched by another 250,000 it performs for other facilities.

Local images come across a RIS/PACS from GE Healthcare. Report turnaround is 20 minutes or less on inpatient or emergency department exams, Owens says. Less urgent outpatient studies are complete in less than four hours on average. The GE system has been in place since 2000, and Owens says that report turnaround has improved greatly. In earlier configurations, pulling up relevant prior exams from the image archive was a cumbersome undertaking. The historical images were stored on tapes, accessible only by a robotic "jukebox." Now, with images stored on a spinning disk archive, a server configuration that consolidates images, a CT image with 300-plus slices can be retrieved in 12 seconds.

Studies ready for interpretation appear on a worklist as soon as the radiologic tech validates the image capture. And the archive studies are pulled automatically, a chore once undertaken by the techs. "There is no waiting for old studies," Owens says. "It's a constant workflow."

Despite all the technology advancements, the future economic picture for radiology—if not other specialties—remains ever precarious, Owens says. "We expect another big hit with reimbursement under health reform," he says. In his view, one shared by many in the industry, smaller employers will opt out of paying for health insurance at all, instead choosing to pay a financial penalty for non-participation. "It will be cheaper to pay that than offer insurance," Owens frets. In the aftermath, more patients

will move to federally sponsored plans, which to Owens are synonymous with lower reimbursement. "The future payer mix is tenuous," he says. "There's lots of speculation right now."

Strategy #5: Pick a Platform

Las Vegas-based Desert Radiologists has a technology array that would be the envy of many a group practice. But for the 45-physician group practice, I.T. is as much a survival tool as anything. The practice runs five outpatient facilities and reads for 10 hospitals in the state, in addition to some 20 other clinics and surgi-centers in the city. All told, it provides some 3,000 daily studies, says Jerry Hartman, chief operating officer. The tech line-up includes a shared RIS/PACS from McKesson; an interface engine from Orion, that serves as the connective pipeline to the hospitals; and a voice recognition system from Nuance that physicians use to create reports.

It's an elaborate set-up that took nearly two years to build, says Mike Reardon, information systems director. But by standardizing its reading platform and more efficiently distributing work across the group, Desert Radiologists enjoys productivity well above industry norms, says Hartman. "Our

radiologists are reading about 25,000 RVUs per year," he says, citing the relative value units measure of physician work output used by Medicare as the basis of its payment methodology. The industry norm falls between 15,000 and 18,000 RVUs, he adds.

Reardon provides a thumbnail of how the network is configured: Images originate at the imaging equipment in the hospital. They are transferred via a gateway server to both the hospital's native PACS and to Desert's McKesson system. Images from the various hospitals pass through a load balancing switch, which distributes them across one of five imaging servers in play at Desert. Report creation is enabled by the Orion interface engine, which runs on an HL7 messaging standard. An order is entered in the local hospital's RIS, which sends a copy to Desert's RIS via the interface engine. Physicians dictate their reports on the Desert RIS, which automatically sends back a copy to the hospital. Patients are identified by special prefix codes assigned to each hospital. And the McKesson system can route images to the proper radiologist at Desert in case a specialist is called for.

In essence, Desert can push images to any of its radiologists, regardless of location. That has resulted in a much more productive workforce, says Hartman.

Meaningful Use: 'The Fruit in Front of Us'

Alberto Goldszal, CIO of University Radiology Group, has already taken many steps to boost revenue at the 95-radiologist practice, centered in East Brunswick, N.J. He's embraced PACS, trimmed expenses via consolidated storage, and standardized his viewing platform. Asked how the group can boost its revenue, he responds with a two-word phrase: "meaningful use." By the end of the year, Goldszal says the practice will attest in the federal government's EHR incentive program. And even though some of the criteria called for in the program aren't particularly relevant to a radiology group, the CIO says the incentive money "is the fruit in front of us." Goldszal figures some 80 of his radiologists will qualify—not all treat Medicare patients—and collectively snag \$1.4 million in incentives.

Qualifying has required some tweaking of office workflows. For example, patients are now questioned about smoking and smoking cessation. "If someone is coming in for a lung cancer screening, it is relevant," he says. "If someone is coming in for a foot X-ray, it is not so relevant."

The practice captures the needed data in its RIS, from MedInformatix. "We have to meet the same criteria as family practice physicians," Goldszal says. "It is the square peg in the round hole." The practice is already set for other aspects of the incentive program, including data exchange requirements which will be part of later phases. URG has established a regional data exchange for images, Goldszal says.

By making patient imaging records more widely available, "you can avoid unnecessary imaging," he says. Goldszal hopes that future iterations of the meaningful use program will embrace radiology-specific quality measures, most notably accumulated radiation dose exposure. "That is very relevant for radiology," he says. "But whatever data the government calls for, we go with the flow."

“During downtime, the physicians can see what work is needed at the other sites,” he says.

Strategy #6: Reduce Idle Time

Downtime reduction has been the key to economic growth at RadCare, a Dallas-based radiology practice that serves 20 hospitals across six states with on-site staff. RadCare also delivers teleradiology services to another 65 sites across 25 states. In sum, it has 165 radiologists, who deliver 1.5 million annual hospital-based reads and another half-million teleradiology reads, says Phil Heckendorn, president. “Growing the business is metric-driven,” he attests. “Turnaround times win new business. You have to commit to turnaround times and have the capacity to demonstrate you’re performing within those metrics.”

To meet those goals, RadCare began to standardize on a common reading and reporting platform from Carestream, one year ago. Faced with multiple PACS at its client sites, the group figured moving to a common platform would offer efficiency gains. “We needed a super-PACS that could sit on top of the hospital sites and tie everything together,” Heckendorn says.

Prior to deploying Carestream’s SuperPACS™, RadCare’s radiologists might work with multiple workstations, each offering access to a local customer’s PACS. “Moving from one hospital to another was cumbersome,” he says. RadCare’s workforce now has access to a universal worklist from one workstation. The Carestream SuperPACS™ system receives images from

multiple hospital PACS—seven different vendors are in play—enabling the group to distribute work in a far more efficient manner, Heckendorn says. Likewise, orders and reports flow through an HL7 feed to the SuperPACS™ platform.

While its hospital-based physicians typically remained busy, off-site radiologists providing teleradiology services had considerable downtime. “Taking on a new client meant living with idle capacity,” Heckendorn says. “Tying offsite resources into a single platform provided a traffic control mechanism. We can place physicians where their productivity will be highest.” The set-up has reduced physician downtime by 75 percent, Heckendorn estimates.

Strategy #7: Outsource Billing

Boosting radiologist productivity is one thing. But unless claims go through cleanly and efficiently, technologically-enhanced output isn’t putting money in the bank. That’s one lesson learned by West Coast Radiology Centers, a Santa Ana, Calif.-based group practice of 15 radiologists. Filmless for the past eight years, the group has seen physician reading capacity improve since it implemented a RIS/PACS system from Merge Healthcare. The system has embedded digital dictation, which pushes the dictated report to a transcriptionist, who then types and returns it to the originating physician. Reports are usually completed within two hours of interpreting an image, says CEO Matt Albers. And productivity with the RIS/PACS configuration has improved 30 percent since eliminating film, he estimates.

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For nearly 20 years, West Coast relied on its own billing company to process claims. But the company evolved into a costly expense center, one burdened by a lack of automation and mounting manual labor to process claims. In January of this year, West Coast parted ways with the billing firm, signing on with Zotec Partners, a third-party billing vendor. Zotec receives a data feed from the Merge RIS module, which includes demographic information about the patient and data on the reading performed.

Zotec takes the file download nightly, creating an electronic claim it sends to payers. Zotec is able to bypass a claims clearinghouse on the majority of claims, which go to a handful of major payers, such as Aetna, Cigna and Medicare, Albers says. The other claims route via clearinghouse.

According to Albers, West Coast has been able to cut its billing costs—which the group measures as a percentage of collections—in half (he declines to provide other revenue figures). Cutting the cost of getting paid boosts the group, which Albers says has faced declining reimbursement rates for years. “We are running out of technology tricks to lower costs, but there will be constant pressure on us to do so,” he says. ■