# Beyond the Basics: Next-generation Radiology Reports

By George Wiley

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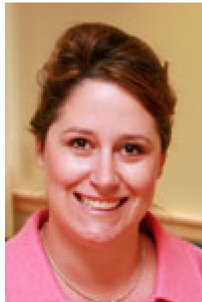
At Shields Health Care Group (SHCG), an outpatient high-end imaging provider headquartered in Quincy, Massachusetts, staying ahead of the technology curve has been a clearly defined business initiative from the beginning. It is paying off handsomely. According to the company, one in every three MRI patients in the state is imaged at an SHCG.


Patricia Whelan, MHA, CIO

SHCG has leveraged the capabilities of its RIS to create customized radiology reports that are popular with referrers. “One of the biggest things we’re doing is something we call e-protocols,” Patricia Whelan, MHA, vice president of IT at SHCG, explains. “In our RIS, this allows the physician who views the images for the referrer to select the protocols used to view images. This feature is really important for a RIS because it allows you to tailor the exam specifically to what it is that your referrer would like.”

Whelan adds that there are multiple imaging options: “Everything from slice thickness to flip angles—all kinds of techniques that could be used—and the RIS that we have allows the radiologists to select the protocols that best meet the needs of the referrer. We can also set up a specific protocol with that referrer’s name, and it pops up for the technologists before they begin the exam. Not every RIS has the ability to do that. If physicians know that you are going to do that for their special patients, they know that all those patients are going to get that same protocol. It allows us to give those referrers exactly what they’re looking for, she says.

SHCG, which uses a RIS from Sectra Medical Systems, Linkoping, Sweden, also customizes reports by specialty. Whelan says, “We are customizing at the procedure level. For example, all of our cardiac CT exams will have certain images in them, with this table and that narrative. They will always be in the same order.”

In the near term, SHCG might take customization by specialty a step further. “We’re thinking about reorganizing our website and having landing pages by specialty,” Whelan says, “so that when you come to Shields.com, you’re not getting all the general messages; as an orthopedist, you would get a landing page where everything was oriented to orthopedics—maybe all the national news or what’s hot in the field. Then you could also log in to get the radiology reports.”

**Express Link**

One way that referrers currently get their SHCG reports is by signing onto a Web portal. SHCG’s website hosts

a portal called Shields Express Link that lets referrers gain access to reports and other data based in the RIS, Whelan explains. Through Express Link, referrers can check the status of their patients, order more exams, review finalized reports, and (through a DICOM viewer) look at patient images on SHCG's PACS. Referring physicians can also listen to an audio version of the report while multitasking. Many quick-reference tools allow referrers to understand the key elements in a report at a glance, Whelan says, and more RIS-based reporting advances are on the way.

"What we have coming out very soon, for our referring physicians, is a chat-with-the-radiologist-now feature, along with some instant-messaging capability," Whelan says. This will allow referring physicians to see immediately whether the radiologist who interpreted the exam is available. Then, a telephone conference can take place, or there can be text messaging between the physicians.

The referrer can also request a Web conference so that the referrer and the radiologist can view images and discuss them. Charts, graphs, measurements, and grids can be referenced. This is a big upgrade to the left-margin, book-report style of traditional radiology reports, Whelan notes. She says that referrers can't wait for the interactive features to be implemented.

In one instance, there already is immediate interaction. Whenever an imaging exam results in critical findings, the referring physician gets a phone call from the radiologist, Whelan says. "If there is a positive finding for a critical result, it is a physician-to-physician phone call," she says. "We don't believe in sending an email. You've got to have questions answered. It's a tremendous relationship builder, and it definitely affects referrer satisfaction."

**Tracking Outcomes and Preauthorizations**

The information that SHCG imports to its RIS does more for referrers—and, potentially, for insurers—than pure reporting. The RIS data provide referrers with a way to track outcomes, Whelan says. This information also lets SHCG track its own reimbursement measures for factors such as copayments and deductibles.

Using SHCG's metrics, referrers can track not only how many cases they refer to SHCG, but four key outcomes: whether the exams were positive and clinically indicated; positive, but not clinically indicated; negative; or negative, with follow-up care indicated. By looking at data for those four classifications, Whelan says, referrers can refine their utilization-management practices. If SHCG spots anomalies in referral utilization patterns it also can—and does—initiate educational feedback.

"We use the information to target our educational coursework out in the communities," Whelan says. "We host a lot of educational events."

SHCG operates 28 imaging centers, some as joint-venture arrangements with hospitals or other facilities and

some as stand-alone centers, according to the company. While most are MRI oriented, SHCG also offers CT and PET/CT at some locations, along with radiation-oncology services at three centers.

While SHCG does not currently make its outcomes data available to insurers, Whelan says that this might happen on the blinded-data level, possibly reported by referrer specialty. Such data are needed, she says. "There's an assumption out there that there is inappropriate exam ordering, but there are actually zero data to support that claim," she says. "This is a way of beginning to collect that type of information."

When a patient is scheduled for an exam, insurance data on that patient are imported into the RIS, Whelan says. This allows SHCG to flag referrers when they must contact insurers for preauthorization. SHCG also correlates the data with other information available on the Web to make sure that it stays current with patient deductibles, copayments, and coinsurance. Whelan says, "We are importing those financial fields from a third-party system onto the RIS. It's key that we have up-to-date, accurate information from the insurers when the patient arrives."

**Interfaces and Electronic Medical Records**

Currently, SHCG has about 17,000 referring-physician logins per month to its website, most of them through Shields Express Link, Whelan says. About 40% of referrers are ordering through Express Link, with 60% either faxing or telephoning orders, she adds.

While Express Link gives referrers quick access to reports, some referrers want more. Increasingly, Whelan says, referring physicians want reports to show up automatically in the electronic medical record (EMR). To get the reports to the EMR, SHCG offers RIS interfacing through its IT team. "As physicians started to adopt their EMRs, they started to ask for interfaces," Whelan says, "so we started HL7 interfacing directly with each physician practice. It wasn't enough for us to have just our portal and the Internet."

While interfacing is great for those physician practices when it can be economically accomplished, it's not workable for thousands of smaller practices. "We can't interface 10,000 different physicians in the State of Massachusetts," Whelan says. "One, we can't afford it; two, we won't finish it; and three, we don't have the resources to do it." SHCG is studying alternative Web-based ways to get reports to referrers—and perhaps even to patients.

Whelan says that companies are developing drag-and-drop information-sharing technologies that could deliver reports and other data to physician practices, with the proper clearance. There is also an identity-verification software industry coming into its own that might make it possible to send reports and images to patients for their personal health records, Whelan says.

With identity-verification software, a system might correlate not only personal information supplied by the patient, but also other available Web data to ensure an identity match, Whelan says. The trouble is that current verification systems are expensive. “The concept is that any patient could go to our website, and obtain a copy of his or her report, and go to the next office visit with that information in hand,” Whelan says. “The only reason that application is not working now is a financial issue.”

The identification-software vendor wants a fee from SHCG for each query, Whelan says. There is no mechanism for making sure that the input comes from a bona-fide patient, however. “You may have people going online and putting in Donald Duck in Orlando, Florida,” Whelan says. “I don’t want to be charged for that. If we can work out a financial relationship where there’s a fee for a positive hit, I’ll pay for that.”

Whatever happens with identity verification, Whelan says, it’s clear that the transmission of reports, images, and other data in the future is going to depend on information-sharing technologies “not all that dissimilar from some of the ideas of Facebook. It’s about granting rights and privileges to information that’s already on the Internet or available on the Internet,” she says.

**Mobile Applications**

SHCG IT isn’t just looking at computer-to-computer Internet data sharing; it’s also developing applications to let referrers use mobile technology to access images and reports, Whelan says.

“Our next big thing here is that we’re actually going to release results in a free, downloadable iPhone application,” she says. “There are lots of physicians out there who are adopting Apple products and using them in their nonprofessional lives; on nights and weekends, they would like to look up results on their iPhones. Our ability to recognize the mobile-application market, whether Blackberry or Apple, is certainly how people are going to evaluate SHCG (and whether we have that forward-thinking technology reputation).”

While information sharing using the RIS as a data hub for mobile or stationary hardware is a part of the future, there is always resistance to technological acceleration, Whelan cautions. Radiologists themselves might drag their feet in making reports conform to the new parameters demanded of them. “Anything that adds additional time to getting that report out the door could be a challenge,” Whelan says. “Radiologists truly only want to do those things that they know add value.”

What SHCG’s referrers think adds value—or what the SHCG marketing team thinks adds value—might not be something that the radiologists agree with, Whelan says. “The classic example is key images. We want the radiologist to identify four key images—and just two key images, if it’s a normal result. The radiologist is saying, ‘On a breast MRI, I’ve got 1,200 images. Which four do I select? This is really going to weigh me down,’” she

explains.

The radiologist might play the legal card and suggest that only four images won't protect against malpractice liability, Whelan adds. "You can have management pushing one way, IT pushing another, legal pushing another, the radiologist pushing another," Whelan says. "All that we really can do is design with the patient in mind. To placate the radiologist you add a disclaimer—this does not represent the complete dataset—but you do two to four images."

There's a different kind of resistance, Whelan notes, from facilities unprepared to make use of the latest digital applications. This is one reason that some referrers still demand film. Not only do some orthopedists still prefer to measure by hand, on film (even though there are more accurate digital measurement tools available), but there are situations where operating rooms aren't prepared to use digital images either, Whelan says. A surgeon might demand film simply because to view a digital image, he or she would have to leave a sterile environment. Operating rooms will need to be refitted to accommodate digital images before film will entirely disappear.

Change is challenging. It takes time and money, and it can be frustrating. SHCG, however, is committed to an IT-driven future. Whelan says, "Our goal is to deliver the best reports and results in the business—period."

*George Wiley is a contributing writer for ImagingBiz.com.*