Radiology Analytics: Bright Future, Dim Present

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By Aine Cryts [3]

Radiology needs to learn how to use data efficiently.

Imagine that you have a referring physician complaining to the chair of the radiology department: they can’t get their patients in for an MR scan. He recommends that your department buy a new MR scanner. Your technologist says they’re really busy all day, which could also mean the department could benefit from a new MR scanner.

But here’s where that starts to fall apart: a financial analyst looks at the data and determines that volume hasn’t increased and neither has income for MR studies, according to Katherine Andriole, director of imaging informatics at Boston’s Brigham and Women’s Hospital. After a little digging, it turns out that a new MR scanner isn’t actually needed. The much-discussed MR scanner was being upgraded during the week that this referring physician needed to schedule an MR scan for their patient. What was reported as a poor patient experience was really a poorly planned upgrade. Had the department planned better, the patient could have been scanned with another MR scanner.

This is the beauty of radiology analytics solutions, Andriole said, who notes that both open source and commercially-developed solutions are available. Your hospital doesn’t spend $1 million on an MR scanner it doesn’t need, and you discover that your radiology team needs to plan better for equipment upgrades to ensure a good patient experience.

Winds of Change
Nadim Daher, principal analyst for medical imaging at San Antonio, Texas-based Frost & Sullivan, said that in the last two years, there has been an increase in pressure for radiology to align with the “new realities of healthcare, where it’s about cost efficiency, outcomes, payments, quality, and value.” “These are things that radiology has not been prepared for. Instead, radiology has been rooted in the fee-for-service model, the ‘do more and earn more’ mentality,” Daher said. He categorizes the types of radiology analytics solutions into three areas: operational, financial, and clinical.

Analytics can be helpful tools for radiology departments and groups as they work to align themselves with new government requirements. Essentially, radiology needs to provide these metrics to demonstrate the value that the specialty brings to the table, Daher said. Tessa Cook, assistant professor of radiology at the Perelman School of Medicine at the University of Pennsylvania, sees a similar shift over the last couple of years in terms of demand for radiology analytics.

"It feels like the specialty is being challenged in different ways: reimbursement cuts, the job market. Radiology is in the spotlight – and not in a good way. Analytics give us the ability to really start to show what we [as radiologists] bring to the table in terms of contributing to patient care,” says Cook. Radiology practices have to demonstrate their performance to a variety of “customers,” including referring physicians, hospitals, payers, malpractice insurers, and the government, according to William Boonn, CEO of Philadelphia, PA-based Montage Healthcare Solutions. “You have to be able to demonstrate with hard numbers that your capabilities are improving over time or you’re going to be at a competitive disadvantage,” he says.
Technology Challenges

There’s nothing like data to show you where you are and where you could go,” Cook said, who notes that the typical RIS provides a “treasure trove of information.” The challenge is harmonizing the data so “you can start to make correlations.” She insists that the conversation should be about making systems interoperable.

“We need to be able to compare apples to apples and oranges to oranges,” agreed Daher. He said that radiology as a specialty needs to be able to “bring together various sources of data and try to close the loop and write a story around that.”

Ben Strong, chief medical officer at Eden Prairie, MN-based vRad, has wrestled with the issue of harmonizing data for his firm’s clients. He says that vRad uses a solution with “standardized nomenclature” for procedure codes to deliver to its clients’ business intelligence about their busiest hours, the patient demographics they serve, and the most common studies – information that their customers can then use to improve their businesses.

People Challenges

Daher points to the roles of the chief information officer and the chief medical informatics officer as being very important in terms of health care analytics. The challenge is that many of the people with these titles don’t come from an imaging background, so radiology won’t typically be the first department they go to for the initial efforts. “It has to come from the imaging department heads themselves. You can’t sit and wait for the enterprise folks in charge of analytics to come to you,” Daher said.

Before any radiology department or group can truly make a commitment to using the power of these solutions, Andriole said they must first determine the key performance indicators they want to track, such as finances, improving turnaround time on reports, or decreasing the amount of time to get patients in for a complex exam.

Emphasis needs to be on both the commitment to getting this analysis done and the people who will need to do the analysis. Boonn noted that while some practices have close to five or six full-time employees working on data management, most do not. “They have one PACS administrator who’s responsible for reporting and analytics for the practice. They don’t have the time or the training to run something that’s super complex,” he said.

The Futurist’s View

On the operational front, Cook looks forward to the radiology patient flow of tomorrow that can truly take advantage of all the data radiology has access to today. She’s optimistic that the patient experience of the future can one day be as easy as how a consumer books and checks in for flights today.

Here’s how Cook would describe an ideal patient encounter of the future: A patient drives to the hospital to have a CT scan done, parks her car, and then gets a text telling her exactly where to go in the hospital to have the scan done, and about any possible wait time. She will have completed any relevant paperwork at home through the patient portal. “We curate medical records, so we should just be able to verify these things with the patient, instead of making them give us the information again when they have a CT scan done,” she said.

While he doesn’t expect to see it for another five to seven years, Daher said the “holy grail” with radiology analytics is the ability to fully leverage this data to drive best practices in medical decision making, rather than just analyze past performance. “In that sense, we’re really just at the beginning of the path,” he says.

Still, he notes the number of press releases coming out of such health care innovators as UPMC and
the Mayo Clinic, organizations that are looking at large pools of data and starting to note patterns about patients with cancer and Alzheimer’s. “I’m wowed at the potential; it’s very promising from an analytics point of view. The next thing is, this needs to be implemented as best practice.”

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