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Patient pathways & better outcomes: The future of radiology

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» Decentralizing radiology, becoming part of the department their specialty complements.

» Looking at each patient and disease as a whole picture, sharing information and knowledge with multidisciplinary teams, grasping the full problem and, together, treating the patient.

» Getting out from behind the monitor and going to see physicians and patients.

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» Infrastructure for sharing images among sites.

» Leveraging radiology experience in image management to drive the implementation of enterprise image strategies.

INTRODUCTION

In ancient Roman times, all roads led to Rome. From one monument in central Rome, all roads began and distances were measured. Today, the patient is at the center of care—with success measured in wellness, improved outcomes, reduced variability, increased quality and higher patient engagement and patient satisfaction scores. Monumental for sure. But how do we make the patient journey better and how do radiology departments engage to help the process? Global radiology leaders weigh in.

The roads of healthcare are busy with healthcare professionals, physicians, physician assistants, nurse practitioners, nurses and technologists carefully and diligently driving patient care. But across the globe,

roadblocks abound, along with potholes, poor signage, information barriers and a lot of breakdowns in care. Healthcare suffers from being disjointed, riddled with inconsistencies, harboring misaligned incentives, disabling care decisions due to siloed data and holding onto old, inefficient structures and outdated thinking. Patients and clinicians alike know we need change.

To repave the road, and re-route the right caregivers to the right patients with the right care at the right time, we need to conceive and drive widespread change. Where to begin? And what is radiology's role? Our experts tell us to support patient pathways, we must equip multidisciplinary teams with anywhere access to patient data and images via a PACS linked to an EMR or health information exchange. We also must encourage radiologists to become essential members of multidisciplinary care teams such as tumor boards in oncology and care committees in orthopedics. Some ideas are provocative: Radiologists should offer more direct guidance to patients, even bypassing referring physicians. And the day may come when subspecialized radiologists are part of the department they serve, such as neurology or orthopedics. See what the experts recommend.

PATHWAYS PROVE THEMSELVES

To gain efficiency, hospitals need to operate more like factories with patients on a line, to be cared for carefully and well. That is the view of competitive strategist Michael E. Porter, PhD. In healthcare, Porter advocates that "accountability for value should be shared among the providers involved. Thus, rather than 'focused factories' concentrating on narrow groups of interventions, we need integrated practice units that are accountable for the total care for a medical condition and its complications." (What is Value in Healthcare? N Engl J Med 2010; 363:2477-2481; December 8, 2010, at NEJM.org)

Clinical studies have long proven that patient pathways that place the patient at the center of care reduce variability in clinical practice, improve outcomes and reduce cost. (Int J Qual Health Care. 2003 Dec;15(6):509-21; Am Fam Physician. 2010 Dec 1;82(11):1338-1339) The idea is to focus on the patient's overall journey rather than the contribution of each specialty or caring function independently. Multispecialty physicians and caregivers must work together in teams.

But what are the consequences of this change for radiology and the demands patients and healthcare organizations place on expert image interpretation and disease management advice? From an organizational perspective, how should radiology change? And how can radiology drive this change and position itself in the emerging environment? Thought-leaders we spoke to from across the globe have some solid strategies for radiology, patients and healthcare delivery.

The Metamorphosis of Radiology

Radiology plays the key role of jumping in to investigate disease—diagnosing, staging, monitoring and following it over time and offering expertise and consultation on disease states. This discipline is now in a stage of profound metamorphosis. "The picture of the doctor's doctor, the radiologist, is changing. We serve that role as well as being the patient's doctor," says Neuroradiologist Jeffrey Sunshine, MD, PhD, vice chairman of the department of radiology at University Hospitals Case Medical Center and CMIO of University Hospitals in Cleveland.

Building the value of radiology and the radiologist, in particular, sits at the root of efforts by professional associations such as ACR and RSNA to empower radiologists to be larger contributors to care teams. ACR proposes that success hinges on answering one question: How can we deliver more value to patients? ACR's

Imaging 3.0 initiative is a call to action to all radiologists to assume leadership roles in shaping America's future healthcare system through five pillars: imaging appropriateness, quality, safety, efficiency and satisfaction. They must drive change processes—focusing on value vs. procedural volume. This hinges on information integration and the patient being at the center of care. (Journal of the American College of Radiology, Volume 11, Issue 1, Pages 7–11, January 2014)

Decentralization and specialization. With more radiologists having subspecialized in areas of such as neurology, cardiology, gastroenterology or vascular surgery, Peter Leander, MD, senior physician and regional chief medical officer at Region Skåne, a large Swedish healthcare provider, proposes they may decentralize, becoming part of the department their specialty complements. Equipment could remain centralized in a radiology department but expertise for reading and interpretation would lie within the area of specialty. Radiologists would become stronger members of multidisciplinary teams. Or perhaps some rads would be reporting radiographers while others with specialized skills would perform interventions, interact with patients and carry on research. No matter the future course, Leander recommends "leaving old stuff behind, old exams, things that are not progressive. Focus on new, complex things that offer more value. We need patients to know what radiologists do for them, what value we add."

Similarly, Giorgios Karas, MD, PhD, a neuroradiologist and head of the department of radiology at Sint Lucas-Andreas Hospital in Amsterdam, advocates that radiologists move beyond being reporters of images into care integrators, interacting with the patient, offering suggestions for care. "There are plenty of turf wars with other specialties trying to take radiology exams away. We need to move into the area of clinicians. We are doing this already. We know who the best surgeons are, we see their work if they are not. Jumping the S-curve [the success curve] won't happen overnight, but it is time to move slowly in that direction. It is a natural revolution that will reward the ones who want to step forward." (Jumping the S-curve: How to Beat the Growth Cycle, Get on Top, and Stay There; Harvard Business Press, 2011)

Presenting information in an understandable way. Creating better reports is another item radiologists say drives value. "Write a good report, in short format," Leander urges. "Many reports are just too long." He blames that on radiologists, as well as a lack of conclusions and too much confusion. "We need to report based on disease state, such as with colorectal cancer, offering to the physician the facts he or she needs. If we build standard reports and improve on the details as best practices change, we offer greater help to specialists and build our value."

Sunshine adds an exclamation point to the need for better reports. "The trend is real: Radiologists can no longer provide narrative-only reports. Physicians want structured information and reports coming out of radiology. We will see how this will change outcomes."

Fredrik Gustavsson, Sectra CTO, agrees. To create effective integrated practice units, we must gather data and present them effectively to clinicians as well as measure the results, Gustavsson urges. "We need to monitor patients better, without overloading individual caregivers with information. Working along care pathways looks to accomplish that goal—interjecting greater standardization of care, reducing variability and introducing measures to track how we are doing. This allows organizations to see how they are effecting outcomes. But to get there, information needs always to be presented in an understandable and actionable way. Radiology needs to be sure they are streamlining the process, not slowing it down, and providing actionable output."

Communication, Collaboration and (Multi-Disciplinary) Care

So how do we remove the road-blocks separating current radiology reports from the desired goal of being more integrated, understandable and actionable? Adapting to a new way of thinking is first on the list, says Hans

Lugnegård, Sectra product manager, followed closely by the destruction of old structures and hierarchies. “Radiology must be a core piece of the team centered on the patient, be more integrated in terms of exchanging patient information and images. Be more valuable, more visible. That means being very fast to doctor and patient needs, with richer and conclusive reports as well as advice.”

Being an essential part of the whole picture. The fragmentation of healthcare is another large pothole of sorts. “We cut diseases into pieces, knowledge into segments,” observes Karas. He urges radiologists to look at each patient and disease as a whole picture, sharing information and knowledge with multidisciplinary teams, grasping the full problem and together treating the patient. That helps the patient as well as the population who may someday need the knowledge gained from that collaborated experience. “Just because medicine has gotten so narrow based on specialties, we should no longer practice in those silos,” he says. “As physicians, we are knowledge workers trained to do one trick. We need to combine our skills with the team. That is our value.”

Karas also urges radiologists to polish up their people and communication skills and pose critical questions. Get out of the back office and go to the front office. Get out from behind the monitor. Go see physicians and patients. Be progressive on exams to avoid commoditization. Find your differentiator. Don’t just report, help solve the puzzle. More structured reporting also forces you to take a stand. Innovate continuously: answer specific questions, add new MR sequences. Divest in areas that you don’t excel at. You don’t need to do the full spectrum.

Like Karas, Leander recommends radiologists become more vital to multidisciplinary care teams. “Be a part of it at full speed,” he says. “Many of my colleagues say they do not have time. I say we have to. Say no to old things and embrace new things. For example, work with orthopedic surgeons only on complicated fracture cases as consults. They will remember that, that you the radiologist helped them.”

Driving the Change

Getting ahead of the curve, in this case, the patient exam is a key role for the radiologist in value-based healthcare. “Get proactive,” Sunshine urges, making sure the right exams are chosen by other clinicians. Radiology must put this in place, he says, in terms of creating protocols based on appropriate use and best practices, putting the word out when new techniques trump old exams and utilizing internally built or commercial decision support tools.

Being more standardized and predictable need to be goals for radiology, Lugnegård adds. Physicians and caregivers need to be able to gather information, following the patient through the different stages of diagnosis and treatment. This means taking down the high walls between departments, allowing patients to journey easily through the disciplines with each offering expertise to help the patient. “Radiology needs to help enable that enterprise view,” he says. “Be connected via the centralized EMR or image exchange that all physicians access. Radiologists are critical to acute care and the investigation of most diseases. This is the important role radiology takes along the patient road, driving better decisions.”

The patient in the center. Better decisions are clearly what patients want, too. Patients who are more informed on their disease state demand more information and often more interaction with their physicians, even asking for specific imaging exams, Leander points out. He has watched radiology evolve over the last several decades, as a radiologist focused on gastroenterology and body CT and MR, chairman of radiology at a university hospital and now regional chief medical officer of radiology and nuclear medicine. He calls the change in radiology and personalized medicine “massive and still coming.”

The patient also needs to be pleased with care, namely in the U.S. where healthcare is now being measured

and compensation based on patient satisfaction, notes Adar Palis, executive vice president and COO of Harrison Medical Center in Bremerton, Wash. The carrots and sticks are real. “Healthcare organizations are accountable in real dollars lost if patients don’t rank us well.” To get paid in full, hospitals also have to reduce readmission rates—which involves better coordinating care in the hospital, outside the hospital and at home. “All of this makes us more focused on the patient. No doubt though, there is still plenty of room for improvement.”

Sunshine acknowledges consumerism plays a large role today, too. “We are doing a good job, but we need to be sure patients’ expectations are being met,” he says. “To the patient, there is definite value in having had the right test. That means the right exams at a convenient site, getting results quickly and explained well, and ensuring easy [patient] portal access. Whenever there hasn’t been a collapse or crash, think of it as supporting the Trip Advisor equivalent for patient choices in ambulatory medicine.”

“Radiologists have incredibly important tools,” he continues. “We haven’t represented that well enough, except perhaps in mammography and interventions where we most commonly introduce ourselves to patients. PR never hurts.”

Karas agrees. Radiologists need to “see further than the scan,” taking over the patient in a clinical schema. “We need to change our mentality in patient care; we need to think with them.” In a secondary role, he offers second opinions to patients where he is being confronted to answer clinical questions as well—assisting with advice on next steps of treatment or not, combining research, knowledge and recommendations.

Key Takeaways

Radiology plays the key role of jumping in to investigate disease–diagnosing, staging, monitoring and following it over time and offering expertise and consultation on disease states. This discipline is now in a stage of profound metamorphosis. Key adaptions that thought-leaders put forward include:

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IT SOLUTIONS SUPPORTING CHANGE

Being a key part of the whole picture of patient care, decentralizing radiology and increasing personal contact with referring physicians and patients is a goal for the new radiology. IT plays an important role in supporting radiology to get there, providing a tool for enhancing communication with referring physicians. A well-managed IT infrastructure will help remove roadblocks on the patient pathway, and, as the experts show, provide the foundation to accomplish the stated goals.

EMR Connectivity

The American College of Radiology says radiology departments need to leverage IT, their workforce and work processes. Perpetual modifications will deliver enhanced value to referring physicians, the multidisciplinary team and patients. Value is defined in terms of timely and actionable information—and "value activities are the discrete building blocks of competitive advantage," according to ACR.

To be vital drivers of care, radiology departments can no longer be siloed providers of reports and interpretation. EMRs, health information networks and interoperability bridge the information gap for the multidisciplinary team. "We need to be integrated consumers and users of the EMR—linking images and reports via PACS, very easily for everyone," says Sunshine, noting University Hospitals chose early on to integrate its EMR and PACS. "Not being fully connected simply doesn't work. We don't just look at images, we need to look at patients, where they are in their care, what they require, and we to know to respond to how engaged they are."

At University Hospitals, the EMR launches the appropriate image for the patient a physician is looking at. Most rads also get the advantage of access to the full patient history when reviewing images. "As we begin to look at the path of the patient through healthcare, we understand the result of the exam changes the path," Sunshine says. "We need to get the patient from the generalist to the specialist—not a lot of specialists, the one or two who can impact care. That is an incredible value proposition."

Nearly halfway around the world in Amsterdam, Karas also has found a better, IT-enabled way to treat patients. The facility has put in place structures that force physicians to think in a new way. Their EMR also is fully integrated with PACS, enabling radiologists and other physicians to view any piece of information on the patient and notes—all on one screen. "Without even realizing it, you find yourself reading through the patient record. More and more. It takes a few months to have the full integration workflow in your head, and part of your patterns. You do gain more knowledge from having more information."

This helps in multidisciplinary patient meetings. "With more information, I see myself thinking along with the other specialists," Karas says. "I am learning, they are learning, and it starts with the integration of information."

Removing Roadblocks

Images also need to be approached from an enterprise level, supporting distributed healthcare, says Gustavsson. "Health systems benefit from solutions offering bidirectional information exchange. This creates efficient workflows and allows greater communication among multidisciplinary care teams. This is how we achieve knowledge sharing."

Gustavsson encourages hospitals and health systems to reduce the number of systems they use and simplify IT infrastructure. Translation? Information sharing and interoperability are essential but so is a reduction in systems that eliminate a layer of complexity, needing staffing and associated expense "This works to the advantage of both health systems and physicians in terms of reducing costs and complexity. These are strategic decisions: ensuring EMR compatibility, exchanging and sharing information based on standards, focusing on usability and working with patient portals. Healthcare will gain efficiency when systems talk to one another and as we are able to display the relevant data that does not overwhelm caregivers."

Lugnegård agrees: As some radiology practices lose some volume, they must add value in areas of strength, offering new methods of imaging, high quality service, structured reporting with linking to images and lesions. An enterprise imaging strategy is central, based on a workflow-driven solution taking the whole patient's imaging history into account, Lugnegård says. Radiologists need to guide the image management strategy, making sure

the solution is optimized for better patient care and facilitating all aspects of multidepartment workflow.

Connecting Caregivers

The team approach is the way to go—provided the team is equipped with access to full patient information, from as many sources as possible, Palis says. “Going back in time with priors, and back to this morning with vital information. The team needs to manage all conditions together. The data must be there, across all medicine disciplines as they overlap. A couple of years ago, we found the solution to connect caregivers across our region was creating a healthcare information exchange [HIE].”

Palis and his staff at Harrison Medical Center created an HIE linking radiologists, referring physicians and specialists via a cloud-based regional PACS and image network. The exchange, Northwest ImageShare, offers greater availability of health information across the hospital and three physician groups that together have 17 facilities across the Kitsap Peninsula in Washington. The project grew out the emergency department’s need for images to urgently treat patients—and has enabled broader physician access to images for primary or urgent care. The PACS allows centralization of administration, maintenance and storage of images while maintaining security integrity. The partner organizations established guidelines to securely separate their patient information per HIPAA requirements and individual facility guidelines and protect their referral bases.

Like Harrison Medical Center, at Region Skåne the logical choice to make images and reports available all the time to whatever specialists and caregivers need them was a health information exchange. Leander and his team created a region-wide IT solution that manages and communicates patient information for radiology, clinical physiology, nuclear medicine and mammography. It consolidates all patient and examination data within the diagnostic imaging operations, from what was eight databases into one. It facilitates secure communication of images and information with other county councils and private care providers, as well as such services as dictation with speech recognition and radiation dose monitoring to gather and analyze radiation dose data from the approximately 1 million radiology examinations conducted each year in the region.

Key Takeaways

A well managed IT infrastructure will help remove roadblocks on the patient pathway. It provides a tool for enhancing communication with referring physicians. Key success factors include:

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THINKING FOR THE FUTURE

Innovation stands at the center of change in radiology. Like the experts say, radiology must continually create ways to support other physicians and healthcare systems as they pave the way to wellness and keeping populations healthy. Care must revolve around the patient, with radiology, often a patient’s first stop along the road to diagnosis and treatment, taking the first step to facilitate effective and swift interpretation and communi cation. Think improved outcomes, reduced variability and increased quality. Fix the communication roadblocks

and breakdowns in data, opening up siloes and streaming out reports and images. Focus on ways to reduce readmissions. Put forth more effort to be sure patients are more satisfied with their care, and keep coming back to your health system or facility. Take a hard look at your reports, the roadmaps for treatment, and the way, format and speed with which you provide reports and images. And then take a harder look at your technology and tactics for delivering value through enterprise imaging solutions, EMR-PACS integrations and the cross-facility and geography connectivity only an HIE can provide. Be an integral part of the care team: passionate, present, consultative, caring.

Change your thinking today, Sunshine urges. Think about ways to build value as you work through the volume of images on your worklist. And be sure your partners and colleagues see the light. “When you are stuck in day-to-day craziness, start small, but start the change. To build your next platform, dedicate some of your time to vision. Begin integrating clinical data. Be the spider in the web. Gather all the information you need. As the world is adjusts, you will be there already.” Radiology must pave the way

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