Raising the Bar for Radiology Standards

How do we tackle worldwide challenges to create common solutions?

A 56-year-old woman enters the ER with recurring abdominal pain. Before this visit, she had two CTs and an MRI to address her pain, which did not reveal any significant findings. If this patient arrives at a hospital in the U.S., the physician on duty could perform an additional CT to rule out any new developments. If she arrives at an ER in Western Europe, the technician may begin with an ultrasound. And if she has this episode in Thailand, the clinician may choose to review the previous scan before addressing the current issue. Which approach is the best? How much input should the radiologist have in the final diagnosis? Which country has the best imaging protocol?

While each country has a different approach to tackling these complex issues, the goal is the same — to provide the best diagnosis and treatment for the patient. How do we reach this common ground? A distinguished panel of experts from the ARRS and the Spanish Society of Medical Radiology (SERAM) met during the 2011 ARRS Annual Meeting to begin the discussion by analyzing the current standards, the challenges of implementing guidelines with medical colleagues, and balancing examinations, productivity, and budgetary constraints. While the questions are often more plentiful than the answers, the quest toward providing optimal patient care is worth exploring. Let's listen in as these experts discuss some of the most challenging issues in standardizing radiology around the world.

Who Sets the Standards?

Developing and implementing practical guidelines is no easy feat and comes with much discussion, debate, and revision. The greater challenge still is encouraging referring doctors, clinicians, and technicians to adhere to these standards. Joseph K.T. Lee, MD, ARRS immediate past president says, "Referring physicians don't know and don't like using standards such as the Appropriateness Criteria because they were not involved in developing them and [these standards] don't always translate to decision support. I've found them to only be effective when they are required to [follow them] by law or by external agencies."

These challenges become even more difficult when you try to standardize guidelines across several different countries. Eduardo Fraile, MD, current president of SERAM, adds, "In the European Union, we [have] standards coming from 17 coun-

Our distinguished panel for this discussion includes: Back Row (L to R): Luis Marti-Bonmarti, MD, Lluis Donoso, MD, Charles E. Kahn, Jr., MD, Eduardo Fraile, MD, Mauricio Castillo, MD, and Joseph K.T. Lee, MD. Front Row (L to R): Melissa L. Rosado de Christenson, MD, James Brink, MD, FACR, and Carmen Ayuso, MD.

tries, each with their own rules and obligations. We often face many problems with coordinating standards across the different regions. We often struggle with deciding what the feedback is, how to make it useful, and how we can improve and increase impact with the patient."

"The solution is different in every country," says Carmen Ayuso, MD, who is the current vice-president of SERAM. "Clinicians have to be involved in the guidelines otherwise they are not going to follow them. If clinicians are not using the correct consensus based on expertise, then we are lost."

In the U.S., education and awareness of the standards are often a struggle because many medical professionals don't know that radiological standards exist. Melissa L. Rosado de Christenson, MD, ARRS secretary/treasurer, section chief of thoracic radiology at Saint Luke's Hospital in Kansas City, and clinical professor of radiology at the University of Missouri at Kansas City, shares, "The dissemination of these guidelines among clinical personnel is limited, and it becomes even harder in a private practice."

James Brink, MD, FACR, professor and chair of diagnostic radiology at Yale University and ARRS president, believes that the next big step forward for radiologists in the U.S. is to push standards from being radiology centric and seeking real buy-in from other professional societies. "Because there is so much variability across the country, our departments, and practices, the best thing we can do is develop multidisciplinary diagnostic algorithms that go beyond the Appropriateness Criteria."

Brink also noted that we should look toward the model set by Australia for implementing a multidisciplinary approach. He says, "Australia has done one of the best jobs of developing several algorithms for common conditions. They were able to get buy-in from physicians from the Royal Australian College of General Practitioners and use algorithms that worked for their systems."

Balancing Performance and Economics

Another worldwide issue that many radiologists are facing is how to balance performance and the economic constraints

Drs. Rosado de Christenson, Lee, and Brink discuss the merits of radiology standards in the U.S.

Drs. Donoso, Fraile, Ayuso, and Marti-Bonmarti share their insights and challenges from an international perspective.

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of hospitals, medical systems, and private practices. Lluis Donoso, MD, president of the SERAM Foundation, says, "The way that our services are paid has a tremendous influence on the images we provide. In our institution, we have a budget for the hospital, and we have our managers keep [track of] the number of examinations for specific services. Theoretically these processes should be the same, but the stress and pressure that each person puts on the system is completely different."

Lee shared that one of his former fellows who is now a radiologist at a veterans' hospital in the U.S. believes the budget limitations within the veterans' administration actually benefit the system as a whole. He notes, "When the budget is fixed, they know that when they spend money on unnecessary tests, at the end of the year there will be no additional money to perform necessary imaging studies for the other patients."

While many European systems offer 100 percent coverage to their patients, they are often overwhelmed with waiting lists for patients and budget limitations on what tests they can perform. Fraile explains, "These waiting lists are acceptable now, but as we have more elderly patients, oncologic patients, and budget cuts, these lists are going to become less acceptable. There will be even more pressures and strains on the system."

During a recent international trip, Lee learned about the efficiency of the medical system in Taiwan from one of the delegates. He says, "[All patients in Taiwan] have a personal health information Smart ID card and they can go into any hospital without having to repeat unnecessary diagnostic tests. [This method] saves money for the government and saves the patient from having to repeat steps and being exposed to more radiation. [In the U.S.,] we sometimes have to repeat the same studies because we have no access to the original images when the patient chooses to go to another hospital."

"Maybe some of the reasons to repeat these exams are because of money," Donoso says. "There is money behind the different approaches. In our country, radiologists are responsible for accepting and prioritizing the clinicians' examinations requests. So before performing a CT, MR, or vascular exam, a radiologist can come in and say 'No.' When this is the case, there is no need to do a new exploration or repeat another examination that is only a week apart."

Moving From an Art to a Science

All of the panelists agreed that implementing standards is critical; the challenge lies in getting buy-in from medical colleagues. Lee notes, "I'm delighted that we are here today to discuss this issue. Thirty years ago we didn't talk about standardization in medicine. People would simply say, 'No, I'm a doctor. Medicine is an art'."

At Fraile's hospital in Spain, his staff implemented a quality assurance training program about imaging and radiation dose for all faculty members. While the program was mandatory for all, he stressed that the actual results may be different from reality.

Brink agrees that controlling radiation dose is an equally big challenge for radiologists in the U.S. and adds that overuse of CT is another hurdle to overcome. He says, "The paradox of CT is that it is not recom-

mended as the number one test for many clinical conditions; yet it is often the most frequently used [test]. There are estimates that suggest that inappropriate CTs account for a third of all CTs that are ordered."

Rosado de Christenson states that CT usage also greatly varies by the physician. She explains, "Many days it really just depends on who is in the emergency department. We have some very experienced emergency physicians who order relatively few CTs. And then all of a sudden the shift changes and you get a bunch of [orders for] CTs from a new doctor who is not very experienced and is ordering a CT for everything."

"CT is a tool that many physicians know how to use with confidence," Ayuso says. "That's why we have seen a decrease in other types of imaging at our institutions. If you can't trust who is doing the imaging, then the value of the technology goes down."

Brink shared that he is currently integrating an imaging decision support system into his department that incorporates the Appropriateness Criteria into the process. While it was initially difficult to get the physicians onboard with the idea, Brink eventually convinced them by saying, "You can use this system like a spell checker in MS Word. This system doesn't mean you can't order a CT or any other test. But it gives you a recommendation as to the best test while preserving your flexibility to choose."

More choices are a good foundation for standardizing the science of imaging, but Ayuso cautions that too many options may not be helpful in all cases. She asserts, "For oncologic cases, if you make a limitation, for example, to just use MR, you are widening the scenarios where the wrong step [could be] awful."

"Implementing standards really comes down to a matter of education," explains Rosado de Christenson. "When you get your fellow doctors to work with you to create guidelines and get their buy-in, they can look back at the data and find out that they had an impact on the way that people practice medicine in their institutions."

The Final Word

While discussions like these lead to more camaraderie and productivity among radiologists, all of these innovations will fall hollow without the appropriate conversations and agreements outside of the field to create real change. Rosado de Christenson insists, "We have to change from just communicating in our hospitals and practices. It's important for us to participate in conferences, lectures, and other venues that will help us discuss patients in a way that will improve how we practice radiology."

As radiologists press forward and raise the bar for standards, Fraile asserts that these actions are not only necessary but also vital for the future of the field. He says, "It's clear to me that we have to communicate. There is no way to have real information and figures without taking a real step forward and pressing for these [standards]. This is the only way that the system of radiology will survive." ■

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