Key Takeaways:

- Radiologists at Baylor College of Medicine created an educational simulation module to acclimate first-year residents with their emerging role as imaging consultants for both clinicians and patients.
- The customized module in Radiology-TEACHES featured questions about high-value imaging and a discussion with a patient.
- Residents overwhelmingly approved of the training, which can be easily reproduced through everyday conversations with residents.

Radiologists have often been referred to as the “doctor’s doctor” because of their role as consultants. They frequently serve as the decision point in diagnosis, driving the future steps of a patient’s healthcare process. While this consultative post tends to make the specialty appealing, being so critical to the care process can also cause anxiety, especially for new radiology residents.

Radiology curricula do not typically cover how to interact with and advise other physicians and patients, nor do they encompass how to guide appropriate image ordering. Incoming residents are often so focused on the clinical aspects of interpreting images and creating reports, their role as consultants is frequently overlooked. This can lead to downstream challenges, given that radiologists are frequently the first points of contact for referring providers and patients.

The beginning of residency is usually the first time residents serve in this advisory role. Without much experience, residents are more likely to take actions that could potentially subject patients to unnecessary radiation exposure and additional costs. Improving resident education on appropriate imaging early in their training can lead to better quality care, and attending radiologists have a part to play in this important education.

At Baylor College of Medicine in Houston, radiologists have embraced this duty, creating an educational module to teach residents how to provide quality consultations and deliver patient-centered care. In doing so, the module leverages a web-based program called Radiology-TEACHES, an educational tool that uses an ACR hosting platform to deliver case vignettes covering a variety of scenarios, from providing consultation to ordering providers and patients to understanding the costs of unnecessary imaging.

Combined with an interactive session with a patient volunteer, the module gives emerging radiologists new insights into how radiologists can put patients at the center of care. “There are many opportunities for radiologists to advocate for patients throughout the cycle of imaging,” says Karla A. Sepulveda, MD, associate professor of radiology at Baylor. “For example, radiologists can help ensure convenient scheduling, along with safe and appropriate imaging. They can also discuss imaging results directly with patients, coordinate care...”
Recognizing a Need

Sepulveda, who is also the former director of medical student radiology education at Baylor, and Marc H. Willis, DO, MMM, associate professor of radiology, conceived the idea for the consultation module in 2015. At the time, Sepulveda and Willis were leading the initial pilot of Radiology-TEACHES at Baylor, which focused on medical student education. (Read more about Radiology-TEACHES in this case study.) With the pilot’s success, Sepulveda and Willis began considering the benefits that Radiology-TEACHES might have beyond medical students.

In Radiology-TEACHES, the user logs into a web-based portal and reads a case that outlines the patient’s clinical scenario. Then the user clicks on the CareSelect Imaging® clinical decision support tab and enters the patient’s demographic and clinical information as outlined in the case. CareSelect provides a choice of imaging exams, listed from the most to least appropriate. The user then selects a study to order and receives immediate decision support feedback.

In addition to educating residents about appropriate imaging, the Radiology-TEACHES consultation module includes a component that prepares residents to assume their role as consultants in care. It’s training that residents typically don’t encounter in medical school.

“The content new residents are expected to learn is vastly different from medical school clinical rotations — it’s a whole new world because now they have to be consultants for the appropriate use of imaging as well as radiation safety, which can be overwhelming for residents,” Sepulveda says. “Our thought was, ‘How can we give these residents a ‘welcome to radiology’ combined with the importance of consulting with both physicians and patients?’”

Beyond introducing first-year residents to their consultant role and easing anxiety, Sepulveda had another reason for choosing to educate residents: “We wanted to ensure the concept of patient-centered care was ingrained in residents at the beginning of their careers,” she says. “More interaction with patients can combat burnout, which is common in residents, so this seemed like a natural fit.”

Getting Started

To start, Sepulveda and Willis pitched their idea to the vice chair of education at Baylor. They proposed providing an educational module during the first week of residency. The module would comprise two one-hour in-person conferences and time spent in a virtual classroom doing cases in the Radiology-TEACHES portal. “Our vice chair was 100 percent supportive of the idea due to our other successful work with Radiology-TEACHES and medical students. He was already acquainted with the program and shared the vision that this would be an innovative way to help introduce incoming residents to their new role as imaging experts and what that ideally encompasses,” Sepulveda says.

Next, Sepulveda and Willis approached the ACR about repackaging Radiology-TEACHES, allowing them to create a customized version of the tool. The ACR provided Sepulveda and Willis with access to the case authoring tool, which allowed them to create and load new cases that focused on radiologists’ consultative role.

Sepulveda and Willis crafted about 20 cases based on topics that are common in the emergency room (ER) setting, such as right upper quadrant pain. They focused on emergency cases because residents usually encounter ER cases during call. “We wanted residents to feel confident in knowing appropriate imaging for the most common clinical scenarios seen in the ER,” Sepulveda says. “We imagined what would be the most common cases in which a surgeon or emergency medicine physician might consult with a resident about.” An example case might read: “A 35-year-old Hispanic female presents with right upper quadrant pain. What is the most appropriate imaging?”
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After reading a case, Sepulveda and Willis envisioned that residents would launch CareSelect Imaging, just as in other applications of Radiology-TEACHES. The tool would provide feedback about the most appropriate imaging, as well as helpful resources, such as pertinent ACR Appropriateness Criteria and RadiologyInfo.org summaries. This information would help residents more confidently answer questions about why a certain imaging test (or no test at all) would be most appropriate based on the patient’s clinical scenario.

Sepulveda and Willis also added two open-ended cases. One featured a mammogram with suspicious calcifications, and the other involved a pregnant woman with suspected pulmonary embolism. The residents would be asked to explain what they would do if they were the radiologist on duty in these situations, as well as how they would advise both the patient and the referring physician on the most appropriate imaging.

Emphasizing Consultation

Once Sepulveda and Willis loaded the cases into Radiology-TEACHES, they launched the module and sent each resident an e-mail about it. Although they were not required to participate, all of the first-year residents signed up for the module. “They are just beginning their residency, so they’re highly motivated,” Sepulveda explains. “And this is a topic that resonates with them as something that they can apply to every aspect of residency.”

Before the module officially started, Sepulveda sent residents two patient-centered care articles for pre-reading. Then, residents attended a face-to-face session, during which Sepulveda introduced Imaging 3.0 principles. “I explained the concepts of radiologists being present throughout the cycle of care beyond imaging,” she says. “Radiologists have a role to play in consulting with referring physicians regarding appropriate, safe, and high-value imaging. They are also responsible for consulting with patients and their families, providing actionable reports, and more. Residents often think they’re here just to read images, and I wanted to show them the whole package.”

When they met for the first time, Sepulveda and the residents discussed the pre-reading articles. They also did a technical check to ensure everyone could log into Radiology-TEACHES and easily navigate the cases. From there, the residents had a weekend to go through cases at their leisure. Sepulveda was able to log into Radiology-TEACHES to monitor their progress and determine how many had completed the module (so far, 100 percent of residents have completed the module).

Incorporating Patients

The following Monday, Sepulveda and the residents met again to discuss the cases and their imaging recommendations. Sepulveda also reviewed several residents’ answers to the open-ended consultation questions with the group, opening a conversation about what residents should do in such situations. The remainder of the session involved a patient coming to speak with the residents.

Sepulveda invites patients to speak during different sessions and says patient Melissa Sutter’s testimonial was especially powerful. “Melissa is a colleague of mine who is also a researcher. She’s young and has children and was diagnosed with advanced stage breast cancer,” Sepulveda explains. “I think having someone who was very close to where the residents were in their lives helped increase the relatability: This could have been them.”

For her part, Sutter says she agreed to participate in the conference to help the residents better relate to their patients. “If you’re only seeing the patient’s imaging study, it might be difficult to relate to the patient after 50 cases a day,” she says. “It’s important to have a reminder of the story behind the scan and to remember that your work has a direct impact on the lives of the people in the scans.”

Sutter shared her story with the residents and emphasized that receiving results quickly was important to her as a patient. “I think I surprised them most when I told them I’d rather receive bad news over the phone instead of in person, if it meant I’d receive my results

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"faster," she says. "When you receive bad news, you need time to process and to research your diagnosis so you can ask informed questions. Receiving this news in person doesn’t give you the time to do that, and so the appointment feels wasted to me."

For Nikita Consul, MD, a resident who completed the module, the patient testimony helped give her work context. "Hearing the patient’s perspective is the only way to know what kind of impact our work has on patient care. It reminds me what a radiologist’s primary motivation is, and why we do our job. We are in a service-oriented profession, and we owe it to radiology to hear the perspective of our patients."

Achieving Positive Results

Following the patient testimony, the residents completed a survey in which they rated their comfort level with consulting on imaging appropriateness, safety, and cost before and after the module. The rating scale ranged from one to seven, with one being “somewhat comfortable” and seven being “very comfortable.” All residents reported a higher level of comfort with imaging appropriateness consultation after completing the module, and nearly all residents recommended that the module be included in the introductory curriculum for residents.

Consul says her favorite part of the module was the emphasis it put on the radiologist as the clinical decision support consultant. "It inspired me to take on the responsibility of educating my colleagues in clinical residency programs who may call me with questions. I also enjoyed the patient’s firsthand perspective on their interactions with radiologists; it provided me with great insight about how I may want my future practice to be as a radiology attending," she adds.

Based on such positive feedback, Sepulveda and Willis plan to continue sharing this module with first-year residents and to extend the module beyond Baylor College of Medicine. They are also working to develop additional shareable patient-centered tools and resources among academic radiology programs at other institutions.

Although many patient-centered care tools exist, Willis says that this module goes even farther in terms of cost, safety, and concepts of high-value care. "We would like to create resources for residencies across the United States and internationally to integrate into their training of future radiologists. The curriculum fills current gaps in residency education emphasizing the impact evidence-based radiology consultation has in providing high-value patient-centered care," he says.

Reproducing Results

Radiology-TEACHES recently completed the beta phase of development, and the ACR is making the cases freely available to institutions that join the Radiology-TEACHES community. While not everyone has the ability to customize cases in Radiology-TEACHES, Sepulveda believes that the intent behind the consultation module — educating residents about their role in imaging appropriateness and patient-centered care — is entirely reproducible, as long as educators start with simple steps.

“The most important part is educating future radiologists about cost, quality care, and the patient behind the image,” she says, adding that radiologists can incorporate these concepts into any case reviews. “As you go through the case, bring up the consulting component. Ask your residents, ‘If the ordering physician comes in and wants to discuss this case, what things might you..."
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say to them? How would you advise them on what the most appropriate imaging is?"

Incorporating the patient voice can help solidify the concepts. Sepulveda notes that patients, especially those who work at the hospital or are member's of the institution's patient advisory council, are usually willing to speak to residents. It's simply a matter of reaching out to them, explaining your goal, and scheduling a time.

Patient testimonials are a powerful way to tie everything together and remind residents about the impact of their work, Sepulveda says. "After the patient has presented, everyone tends to feel emotional. From there, I’ll open up the conversation to discuss the residents’ personal experiences as radiology patients, whether their firsthand experiences or their experiences with family members. This interaction brings it home — and helps everyone empathize, putting them on a path for more patient-centered care."

Next Steps

• Assess what educational format might best resonate with residents in your department (face-to-face conferences, daily conversations, web-based lectures, online tests, etc).

• Approach leadership in education and other departments about creating opportunities to enhance resident knowledge of imaging appropriateness and patient-centered care.

• Email radiologyteaches@acr.org to learn more and engage in Radiology-TEACHES.

Share Your Story

Have a case study idea you’d like to share with the radiology community? To submit your idea please click here.

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