

## *Ultrasound is back in style, but does its quality match?*

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Ultrasound has long been one of diagnostic imaging's go-to modalities and a major workhorse in the field. Cross-sectional imaging modalities like computed tomography, however, have historically and more commonly been deemed the quick and easy way to go among physicians looking to diagnose "black box" cases in which patients present with confusing or inconsistent physical exam findings or puzzling clinical histories.

But all that's beginning to change. Ultrasound is slowly becoming clinically stylish again, thanks to improving image quality, its cost-effectiveness in the arena of affordable care, and a safety profile that challenges the perils of ionizing radiation exposure associated with CT. This is great news. A dynamic ultrasound study, performed by an experienced sonographer and read by a trained radiologist, is often a much more economical and safer way to obtain clinical information than CT.

The key phrase to focus on in that last paragraph is "performed by an experienced sonographer and read by a trained radiologist." Due to its rising popularity, ultrasound is increasingly being used by clinicians who are not radiologists. For example, ER doctors may drop a transducer on a patient to take a "quick look" for gallstones or to rapidly evaluate for free intraperitoneal fluid following patient trauma

(FAST studies). Growing worldwide demand for accessible and affordable care, moreover, is leading Third World physicians with limited resources to make diagnoses with point-of-care ultrasound machines that operate with the ease and portability of iPhones or iPads.

While I generally embrace the idea of more physicians using ultrasound within their limitations, particularly in Third World countries with limited access to more advanced imaging, we need a system that defines how patient safety is best achieved, and how this model should be used to prevent clinical misses and to keep sonography quality at a premium level. We radiologists have a responsibility to define ultrasound usage by nonradiologists and how it might best be orchestrated to benefit patients.

One question we might pose is: "Should ER physicians have their ultrasound studies overread, just as a radiologist would overread their plain-film interpretations from the previous evening, to ensure that nothing significant had been missed?"

That quick look at the gallbladder might seem harmless, for example, but the potential exists for missing the "corner of the film" problem that only a specially trained and experienced radiologist would pick up. It's not difficult to imagine an ER physician seeing obvious gallstones on an ultrasound scan and sending the patient for sur-



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gery. But when the surgery doesn't alleviate the patient's symptoms, and a follow-up imaging study reveals the true etiology of the patient's pain to be a large mass at the head of the pancreas missed by the ER physician, that's a big compromise of patient care quality and safety.

Ideally, the first imaging study received by an ER patient should be performed by the most highly trained clinician with the best skill set. If not, repeat exams—or worse, unnecessary CT studies—may be the unfortunate result. Operationally, the most efficient way to go is for the sonographer and radiologist to perform the ultrasound exam.

Other questions related to ER physician-performed ultrasound worth asking include: Are images being archived so that radiologists have access to studies and reports in the same PACS? Are studies dictated by ER docs done as a separate report, and are radiologists able to access those reports? We need to practice continuity of care.

It is imperative that radiologists comprehend the policies at their hospitals and clinics, and understand how patient quality and safety, as well as their own compensation, would be impacted. As radiologists, we are captain of the medical imaging ship, and we have a responsibility to understand the ins and outs of

our entire profession, including the business side. After all, when was the last time you, as a radiologist, crossed specialty boundaries by running into an internist's office or a surgeon's OR suite and began treating and operating on their patients?

When we create ambiguity in medical practice, we create more errors and less desirable patient outcomes. Patients should have their exams performed at the highest level of excellence the first time, every time. Ensuring that nonradiologist users of ultrasound are thoroughly trained is essential. The American Board of Radiology (ABR) does a thorough job of ensuring that education and training for radiologists is at the highest level, and its examinations to assess competency are reliable and consistent. Although it is not the ABR's charter to evaluate nonradiologists in this way, those individuals should be subject to scrutiny to confirm that their ultrasound interpretive skills are commensurate with those of radiologists and that their scanning skills are equal to those of board-certified radiologists and certified sonographers.

We radiologists need to defend our specialty and, equally if not more importantly, we need to endorse practice which provides the highest level of quality and safety for our patients.