

An ultrasound program for the emergency department

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In February 1997, a proposal to develop diagnostic ultrasound (U/S) skills for emergency physicians at Surrey Memorial Hospital was presented to the Diagnostic Imaging (DI) Department and subsequently to the Medical Advisory Committee. To our surprise, this was accepted in principle, with no resistance. With the support of DI, maternity and emergency medicine developed a joint proposal to purchase a \$160,000 portable U/S machine. It happened so easily that I became convinced God is an emergency physician.

We purchased the machine late in 1997 and trained our EPs in April 1998, through a 2-day ultrasound course provided by faculty from the United States. Surgeons and obstetricians also attended the course, and additional training was provided locally using our own machine. DI and emergency medicine agreed that emergency physicians would only perform after-hours U/S exams, and that indications would be limited, initially, to detecting free fluid in the abdomen, looking for a suspected abdominal aortic aneurysm, identifying pericardial fluid, and determining whether a pregnancy is intrauterine (but not evaluating the pregnancy itself).

Just before program start-up, the Diagnostic Accreditation Program (DAP) sent us a letter expressing their disapproval of emergency physician U/S use. The letter stated that our proposed EP training guidelines fell short of existing DAP

standards for training obstetricians, cardiologists, surgeons and internists who use diagnostic ultrasound.

Although the DAP provides physician accreditation for various skills, including radiography, U/S interpretation, and electrocardiography, it is clear they do not understand the concept of using focused U/S examination as a clinical screening tool. While most Canadian EPs are not accredited to read electrocardiograms, computed tomography scans, or chest x-rays, they regularly make critical diagnostic and therapeutic decisions, such as whether to administer thrombolytic agents, based on their unaccredited interpretations. The DAP's concern may be that, if it accredits EPs to perform U/S, then these physicians might request a billing code, as other groups have. Not surprisingly, most DAP members are radiologists, and in my opinion, we do not need the approval of this group to proceed with bedside ED ultrasound initiatives.

The critical DAP letter made the hospital CEO and head of DI rather nervous; therefore, we elected to begin with a pilot study examining the safety, diagnostic accuracy, and time saved by goal-directed EP U/S exams. Since October 1998, we have performed 59 focused examinations on 48 patients. Our positive and negative predictive values are 100% and 99.5% respectively, and the study is ongoing.

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A radiologist's perspective

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Focused abdominal sonography in trauma (FAST) has in many centres replaced the diagnostic peritoneal lavage (DPL) for the early assessment of acute blunt abdominal trauma. In many cases a negative FAST obviates the need for further imaging and intervention. In well-trained hands, it is a very specific and relatively sensitive test for the detection of hemoperitoneum and has the advantage over DPL of

being noninvasive. However, the introduction of this exam has raised many contentious issues around indications for the study, as well as who should perform and interpret the study. Ironically, the question of who should perform the test has in many ways overshadowed the issue of whether it should be performed at all.

FAST ultrasound is clearly not appropriate for every

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CT provides more specific anatomic injury data

patient suffering blunt trauma. It has the advantage of being able to rapidly confirm the presence of hemoperitoneum in the unstable patient, and, unlike computed tomography (CT), can be performed while other tests and interventions are being carried out. Asymptomatic patients who have suffered blunt trauma should be examined with FAST since a negative study precludes the need for CT. On the other hand, patients who are symptomatic should proceed directly to CT to determine the nature and severity of their injuries. The test should not be used to search for hollow or solid viscus injury since it is a relatively insensitive test and could delay proper diagnosis and treatment.

The question remains as to who should perform and interpret the study. Radiologists, radiology residents and ultrasound technologists are well trained in the performance of U/S exams. Their level of training and experience far exceeds that available to other physicians wishing to perform FAST. For example, in many centres, ultrasound technologists now enroll in a 4-year university degree program. The Canadian Association of Radiologists (CAR) has suggested that a minimum of 6 months of training is required to perform and interpret ultrasound exams in daily radiology practice. While some surgeons and emergency physicians are using FAST, they do not have the training suggested by either the CAR, the American College of Radiology or the American Institute of Ultrasound in Medicine. Several stud-

ies, performed without the participation of radiologists, have claimed adequate ultrasound results in the emergency setting by physicians who have had only a few hours of training. However, the rates of detection in these studies would be deemed unacceptable by most sonologists.

If radiologists are going to provide quality care in the emergency realm, they must be available and included as part of the trauma team so they can perform and direct appropriate imaging and radiologic intervention and they must understand the needs of emergency physicians in this regard. Confrontation between radiology and emergency physicians can be avoided when appropriate exams are carried out in a timely and helpful manner.

Editors' note: We leave it to you to decide what is best for your patients in your setting. There are, however, creative solutions being developed across the country to similar interdisciplinary issues that arise. Please share your thoughts or experiences with your colleagues through *CJEM*. [J.R.]