Benefits of near patient ultrasound on the Acute Medical Unit: improving training to improve service delivery

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Background
An increasing number of guidelines recommend the use of ultrasound as a near patient test to aid diagnosis and management1,2,3. While formal teaching and regular use of bedside ultrasound is common across continental Europe4, it is rarely taught at an Undergraduate level in the United Kingdom5,6. Even at a postgraduate level minimum training requirements have not been well defined or evaluated and trainees have to attend multiple separate training courses.

Emergency assessment with ultrasound and echocardiography can be clinically rewarding. Otsuji7 and Stone8 describe the benefits of echocardiography in the assessment of patients with shock. The exclusion of hydrenephrosis 9 and obstructive pyelonephritis10 are other important ultrasound techniques for use in Acute Medicine. In elderly patients an immediate ultrasound can also help to exclude a leaking abdominal aortic aneurysm11.

The primary aim of our project was to purchase a handheld ultrasound device (VScan®, see picture 1) for the Acute Medical Unit. This would help us develop an introductory ultrasound training session for medical students and junior doctors focussing on the skills required for Acute Medicine. We investigated the additional benefits of near side testing within the Acute Medical Unit (AMU).

Methods
Analysis was made of the patient journey prior to and after the introduction of near patient ultrasound testing on the AMU. Evaluation of waiting time and length of stay was made and cost savings projected.

The use of the new Ultrasound device was also audited and the amount of examinations analyzed.

Results
Prior to using the Vscan®, the average wait for an ultrasound guided chest aspiration or drainage was 23.8 hours, with around 40 such requests made annually and 80% of patients requiring an additional night in hospital. Within 3 months of using the Vscan®, 16 chest drains were inserted on the AMU, with projected savings of at least £14,960 per year based on reduced bed days and procedural costs, also reducing the workload for our radiology department. Furthermore, other bedside tests (Chart 1) have been performed including ascitic fluid marking (7 studies), orientating echocardiograms (32 studies) and renal scans (18 studies). As an additional benefit doctors in training can develop procedural skills that would otherwise have been performed by radiologists.

Conclusion
Currently access to training in Acute Medical Ultrasound is limited, costly to trainees and the competencies required are often extrapolated from other specialties. This analysis suggests that as well as enhancing medical training it has additional service benefits for the AMU and the NHS as a whole. We support the need to develop a specific core competency set for Acute Medical Ultrasound to allow more trainees access to this specialty skill.

References:

Competing interests: none declared.