

Evidence rapidly building on utility of ultrasound in areas other than cardiology

January 23 2014

A paper in this month's edition of *Global Heart* (the journal of the World Heart Federation) says there is mounting evidence regarding the utility of ultrasound in areas outside its traditional field of cardiology, with increasing use reported in general hospital wards, clinics, and even pre-hospital environments. The paper is by Associate Professor Bret Nelson and Dr Amy Sanghvi of Mount Sinai School of Medicine, New York, USA.

"The pervasive use of [focused ultrasound](#) is perhaps most evident in the advent of ultrasound training in undergraduate medical curricula," say the authors. They refer to a 2011 review paper that highlighted the growing use of point-of-care ultrasound by clinicians in over 20 specialties. "Increased training by clinicians across many specialties, coupled with technology improvements yielding lower cost and better quality studies, have contributed to this trend," they add.

In emergency medicine, as well as yielding more rapid and accurate diagnoses in most cases compared with physical examinations alone, the authors say that the prognostic value of emergency physician-performed cardiac ultrasound has been demonstrated. Several studies have shown that no cardiac arrest patients without cardiac activity evident on ultrasound survived resuscitation. In general hospital wards and clinics many studies have addressed the use of point-of-care ultrasound. A clinic-based study of first-year medical students instructed in the use of ultrasound demonstrated they were able to detect pathology in 75% of patients with known cardiac disease, where board-certified cardiologists

using stethoscopes could detect only 49%. Pocket-sized ultrasound devices were used by general practitioners (GPs) in Norway to assess left ventricular function in patients with suspected heart failure. Here, 92 patients were assessed by GPs as well as cardiologists, and the measurements obtained with ultrasound by GPs correlated well with those obtained by cardiologists.

Outside the clinic ultrasound has also been proving its worth. In environments where ambulances are staffed by physicians, Breitzkreutz et al assessed patients in cardiac arrest as well as those receiving peri-arrest care. The FEEL (Focused Echocardiography Evaluation in Life Support) study demonstrated that cardiac ultrasound changed management in 89% of the [cardiac arrest](#) patients and 66% of peri-arrest patients. The possibility also exists for ambulances to transmit ultrasound images to the in-hospital emergency teams awaiting the arrival of the incoming patient, with potentially life-saving implications.

The authors also refer to extensive examples of ultrasound being included in the latest medical education curricula in Germany and the USA. Many countries worldwide are increasingly seeing the value of educating their medical students in this essential technique.

The authors say: "Dramatic technology advancements continue to change the face of medicine. In the first several decades of medical ultrasound use, machine cost, size, and significant training requirements meant the technology was used mainly by radiology, obstetrics, and cardiology departments. As machines evolved into less expensive, portable devices and other specialties demonstrated the value of qualitative point-of-care assessments, there has been an explosion of specialties using ultrasound."

They conclude: "The need for comprehensive sonographic assessments by specialist consultants is unlikely to wane with the advent of point-of-care ultrasound. As our healthcare system becomes increasingly

interested in cost-effective and evidence-based care, we are likely to see clinician-performed focused examinations complemented by comprehensive specialist studies with clear clinical indications."

Professor Jagat Narula, Editor-in-Chief of *Global Heart*, adds: "As the [ultrasound](#) training becomes a universal part of training in medical schools, hand-held devices would be carried by physicians, just as stethoscopes are today."

Provided by World Heart Federation

Citation: Evidence rapidly building on utility of ultrasound in areas other than cardiology (2014, January 23) retrieved 27 April 2024 from <https://medicalxpress.com/news/2014-01-evidence-rapidly-ultrasound-areas-cardiology.html>

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