Critical care echocardiography: cleared for take up

S. N. Fletcher* and R. M. Grounds

Department of Critical Care, St George’s Healthcare NHS Trust, Blackshaw Road, London SW17 0QT, UK

* E-mail: nick.fletcher@stgeorges.nhs.uk

Ever since Lewis Fry Richardson, an English physicist, registered a patent for the acoustic echolocation of objects in water in 1912, ultrasound has proved an invaluable technology, and nowhere more so than in medicine. Cardiac ultrasound, or more commonly echocardiography, has been a major component of cardiology practice for nearly half a century. More recently, anaesthetists in the cardiac theatre and the cardiac intensive care unit (ICU) have adapted the transoesophageal technique to perioperative practice. This has facilitated the development of more complex cardiac surgery and improved management of postoperative complications. Most cardiothoracic anaesthetists who are appointed to substantive posts in the UK are now expected to have significant advanced training in echocardiography. The evolution of this development has taken close to two decades to achieve and the first 10 yr of the UK accreditation process is described in detail in the accompanying editorial.1,2

In general ICUs in the UK, echocardiography has remained largely a cardiology delivered service. However, this is certainly not related to a lack of evidence of the efficacy of echocardiography. It is a well-established technique and its diagnostic use is universally recognized. Recently, the volume of the voices calling for intensive care physician delivered echocardiography has been louder, with a number of recommendations and consensus statements appearing in print.3–6 The conundrum has remained of how to move from desire to delivery in a considerably larger specialist group. There are a small number of well-known intensivist echocardiography experts and a larger group of echo ‘probe positive’ enthusiasts looking for either guidance or supervision. Critical care trainees have sought learning opportunities in the excellent FEEL (Focused Echocardiography Evaluation in Life support) and FATE (Focused Assessment with Transthoracic Echocardiography) programmes and
from sympathetic cardiologists and cardiac physiologists. Some intensivists have gone further and achieved a British Society of Echocardiography (BSE) accreditation in transthoracic echocardiography, which is challenging with the case-mix in most general ICUs. The BSE is the professional body that oversees standards and education in the UK and is largely composed of physiologists and cardiologists. A number of formal and informal working groups have been convened and reported their conclusions—all of which call for a formalized accreditation process which incorporates necessary governance and is specifically designed to suit the needs of intensive care medicine. 7–12 So we arrive at the newly joined up Intensive Care Society (ICS) and BSE accreditations in intensive care echocardiography, with the first full accreditation examination scheduled to run in November 2012.

A working group was commissioned by the ICS and embraced by key members of the BSE in early 2011. Cornerstone agreements were established and the benefits to all participating specialty groups became clear. Two levels of competency are defined:

(1) ‘Focused Intensive Care Echocardiography’ (FICE), the entry level (www.bsecho.org/accreditation/types-of-accreditation), and the more advanced

(2) ‘Accreditation in Adult Critical Care Echocardiography’ (AACCE) (www.ics.ac.uk/Meetings_Seminars/ics_modules/fice_bse_echo_accreditation).

Focused Intensive Care Echocardiography

Haemodynamically unstable patients admitted to the critical care unit as an out of hours emergency are one of the groups with the highest mortality. These patients also are part of a group where it may be most difficult to obtain an urgent echocardiograph in many ICUs. FICE is intended to provide potential diagnostic solutions for some of these patients to aid in their management. It is aimed at both trainees and established consultants. There are five imaging planes within the structure of the scan and the application of Doppler is not mandated. The framework consists of a course, a modular e-learning curriculum, and a learning log book of 50 suitably supervised cases with an appropriate mix and final formal sign off. The idea is not to produce a highly skilled intensivist echocardiographer, rather a practitioner who can diagnose important pathology at the bedside in an acute situation. The information thus obtained may have an immediate impact on haemodynamic management, such as manipulation of fluids and inotropes, but more importantly may precipitate an immediate referral for a more formal echocardiographic study. FICE sits at the base of the pyramid of competency, but would be supervised by those at higher levels. 7

Accreditation in Adult Critical Care Echocardiography

As the first candidates sit the written examination for this accreditation, we may reflect on the document setting out this carefully worked advanced competency framework. The accreditation is an equivalent of the other BSE standards of accreditation in transthoracic echocardiography and transoesophageal echocardiography and the joint BSE/ICS document and training syllabus detailing this is available on the BSE website. The level of achievement is: a successful pass of the examination (one sitting per year), a log book of 250 personally performed anonymized case reports of a specific general intensive care case-mix undertaken within a maximum period of 24 months, an assessed submission of video cases, and a sign off from a BSE approved supervisor. Re-accreditation will be required every 5 yr to ensure continuing competency. It is considered that those considering the qualification will be either advanced ICM trainees or consultants. The whole process will be governed by a committee composed of members of both societies and reporting to the BSE accreditation committee. The intensivist passing this examination would sit further up the aforementioned competency pyramid. The need for this new accreditation was driven by the differing case-mix and the need for acute haemodynamic management, as opposed to just diagnostics, within the critical care unit. This contrasts with the largely outpatient population case-mix assessed by the existing transthoracic accreditation. Training and acquisition of competency and transoesophageal echocardiography is not in the curriculum. While this is contrary to published recommendations, 7–11 it was recognized that the acquisition of accreditation in the UK would then be out of reach to all but a small handful of intensivists almost exclusively in tertiary centres. As a critical mass of expertise accumulates within the general ICUs in the UK and equipment becomes more available, it is hoped that the special scanning power of the transoesophageal echocardiography will become more widespread and possibly be integrated into a future process.

Clearly, the two processes will be a continuum of learning and acquisition of competencies, although local governance will be an important factor in each institution. Definitions of mentors and supervisors have been carefully crafted as both teachers and guardians of standards. It is hoped that local networks can be established across specialty lines, including intensivists, anaesthetists, echocardiography physiologists, and cardiologists in the delivery of effective training and education. There is much to be gained in reduced service requirements within the ICU for
stretched cardiology departments, and ICUs able to improve the level of care available for patients, particularly outside standard working hours. So too, in the larger picture, another quantum leap in the utility of echocardiography and the considerable research and education expertise of the intensive care community engaged within this new paradigm. We are grateful to the two societies for working together to deliver an integrated vision of medical care. As yet, this is the most comprehensive and detailed echocardiography training package for general intensive care produced anywhere.

Acknowledgements
ICS/BSE Working Group: Andy Breen, Stefanie Bruemmer-Smith, Claire Colebourn, Nick Fletcher, Mike Grounds (chair), Nicola Jones, Rachael James, Chris Langrish, Guy Lloyd, Navroz Masani, Craig Morris, Rob Orme, Marcus Peck, Keith Pierce, Susanna Price, Conn Russell, Jude Skipper, David Walker.

Declaration of interest
None declared.

References