EDITORIAL

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Accreditation in Echocardiography: The time to act is now

Accreditation in echocardiography is an important and necessary next step towards raising standards in the practice of all forms of echocardiography in South Africa. A process of planning and in some cases implementing accreditation amongst the various disciplines performing echocardiography in South Africa is now underway but in widely varying stages of progress. Is our discipline leading the way or have we fallen behind?

The need for and rationale behind a formal accreditation process for echocardiography was addressed comprehensively in a previous edition of this journal.[1] In essence such a process aims to set a minimum standard of practice competency in order to raise the level of echocardiography practiced in South Africa and, in so doing, protect patients and keep practitioners of echocardiography in good standing. The implementation of an accreditation process that is relevant for all practitioners is complicated by the fact that the practice of echocardiography has diversified significantly in recent years. The previous, primarily cardiology-driven diagnostic modality, has more recently found much wider applicability in the anaesthetic, intensive care and emergency medicine fields. Can we structure a relevant accreditation process together and what would such a process look like?

- The process of accreditation in echocardiography should be voluntary and non-statutory/regulatory. The British Society of Echocardiography (BSE) and the European Association of Echocardiography (EAE) run voluntary accreditation programmes for individuals and echocardiography laboratories wishing to improve the level at which they practice echocardiography. The accreditation processes of these societies are very similar with only minor differences and it should therefore come as no surprise that accreditation with one society carries reciprocity with the other. The process of individual accreditation is separate for transthoracic echocardiography (TTE) and transoesophageal echocardiography (TOE) and accreditation for each modality needs to be completed separately. The approach taken for accreditation in TOE in the UK system is both interesting and instructive. The British Society of Echocardiography (BSE) and the British Association of Cardiothoracic Anaesthetists (ACTA) have found a unifying solution to accreditation in TOE by joining seemingly disparate fields.[2] The potential for splitting the accreditation process for the adult cardiologist performing diagnostic TOE and the anaesthetist performing peri-operative TOE is obvious. However, the BSE/ACTA run a single accreditation process for TOE focused on the modality of transoesophageal echocardiography rather than whether it is performed in the peri-operative setting or as diagnostic procedure in a cardiology outpatient echocardiography clinic. The core knowledge, skills and practices central to the effective use of the modality are understandably transferrable across platforms and this important

idea is given centre stage. This includes the need for a comprehensive and systematic scanning and reporting practice, a knowledge base in cardiac anatomy, physiology, haemodynamics and the necessary pathology as well as echocardiography-related knowledge such as the physics of ultrasound, knobology, image optimisation and understanding the artifacts and pitfalls inherent to the modality itself.

By focusing on the common ground when practicing TOE rather than minor differences in the way the modality is applied it has been possible to reap the financial and administrative benefits of a single accreditation process. This becomes of critical importance when the pool of echocardiographers and echocardiography trainers is relatively small and the need for cross-pollination is large. Duplicating the accreditation process makes little sense. The TOE accreditation process for South Africa has gained considerable momentum and is a logical first choice to pursue as blueprint for TTE accreditation to follow shortly thereafter.

- The primary drive for implementing an accreditation programme should be to raise standards in the performance of echocardiography and not to control remunerative practice. Accreditation should and can also never dictate scope of practice. This is a different matter entirely which is better determined by the specific knowledge and training of the operator. Echocardiography is a tool which is used widely to instruct decision-making nowadays. The person best placed to make that decision should have the necessary background, knowledge, training and experience and the ability to integrate all available clinical information to make such decisions. Depending on the exact circumstances and questions which may arise, this person might be a cardiologist, anaesthetist, critical care physician or emergency medicine specialist. Accreditation should aim to set a minimum standard of practice competence but it cannot replace the principles of good clinical practice which pervades each decision we make.

- Accreditation should be based on objective means of competency testing. Echocardiography training in South Africa is apprenticeship-based and therefore necessarily non-uniform with respect to quality input and output. Unfortunately this also holds true amongst the different, recognised, cardiology training programmes in South Africa. The pre-defined training endpoints, as determined by the College of Medicine, apparently does not compensate for the fact that specific objective testing in echocardiography does not occur uniformly. This results in widely varying levels of competency amongst practitioners of echocardiography. Educational or training systems need to be put in place to ensure that adequate training is available to persons who want to navigate their way through the accreditation process successfully. Tutoring programmes, that often form part of formal accreditation programmes, go a long way to addressing this problem but must typically be supplemented by course attendance and include periods of assistance with hands-on scanning. Registrar training programmes in the various disciplines should also provide the theoretical knowledge and practical experience as well as tutorship to prepare all candidates for the relevant accreditation examination. Having completed a specific training programme - be it cardiology, anaesthesiology or any other - must however not automatically lead to accreditation without completing the formal accreditation process.

  Without formal, external, objective testing there will never be an impetus to improve training programmes. Objective competency testing is always difficult to define in practice but taking pages from the UK and European societies' books should include: A written examination which includes both question-based and video clip-based evaluation as well as submission of a tutored logbook and limited number of study videos. This has a necessary built-in redundancy which aims to improve the process of objective competency testing.

- There is no place for a grandfathering clause when initiating a programme of echocardiography accreditation[3] but this has practical implications that must be borne in mind. It implies that a core group or accreditation committee has to be chosen from amongst practitioners who already possess some form of internationally recognised accreditation with objective testing such as accreditation with EAE/EACTA (Europe), BSE/ACTA (United Kingdom) or ASE/ASA/SCA (United States).

  This accreditation committee will then have the responsibility of administrating the accreditation process. The alternative solution is that external examiners are invited to help run the first number of rounds of accreditation until the pool of accredited practitioners has grown large enough to support the accreditation system locally.

  A further solution would be to explore the option of temporarily having an internationally accredited examination run in South Africa as a satellite site - such as for instance the BSE/ACTA examination. This will again allow the local pool of accredited members to grow to a useful size from an accreditation administration point of view.

A number of rapid, formalised, emergency echocardiography protocols such as FEEL (Focused Echo Evaluation in Life support), FATE (Focused Assessed Transthoracic Echocardiography) and FAST (Focused Assessed Sonography in Trauma) have been integrated into the assessment of the critically ill patient, typically in the peri-arrest setting. These so-called point-of-care ultrasound (POCUS) protocols have become an important adjunct in the armamentarium of the emergency physician and have now been incorporated into the emergency medicine specialisation curriculum. The detail of this is described more fully in Addendum 1. There is however no external accreditation process with objective testing for point-of-care echocardiography in South Africa that could be followed by a physician or general practitioner working in the emergency setting for example. A comprehensive solution to accreditation in echocardiography including TOE, TTE, emergency echocardiography and echocardiography use in ICU should actively be pursued for the country.

The cardiology community has fallen behind with the process of driving accreditation forward. A major portion of the expertise in echocardiography resides in cardiology and we have a critical contribution to make. This is an important juncture in cardiac imaging in South Africa and the time to act is now. There is an opportunity to move forward together as an echocardiography community with an accreditation process that will benefit everyone – and first and foremost - the patient.

The process of TOE accreditation should be our first order of business, which will then act as a blueprint for TTE accreditation to follow. The anaesthetic community through CASSA (Cardiothoracic Anaesthesia Society of South Africa) have created a well thought out and structured first draft document as a blueprint for TOE accreditation in South Africa (see Addendum 2). The momentum created by this must act as an important springboard to get the process of accreditation in echocardiography off the ground. The cardiac imaging society of South Africa (CISSA) must now officially engage the process to ensure participation and input from all the important stakeholders in echocardiography – notably cardiology.

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ADDENDUM 1

Echocardiography in emergency care

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Point of care ultrasound (POCUS), performed by attending physicians, has recently become an essential skill to enhance the accuracy of the physical examination of our patients. POCUS provides additional, real time, patient data, which improves diagnostic accuracy and reduces procedural error rates. Technology has evolved whereby ultrasound machines have become more compact, portable and durable. Further improvements include better image resolution, ease of use and simplified management systems for patient data.

Obstetrics and Gynaecology, together with Cardiology, lead the way for the use of ultrasound in the front room. Other specialties (Emergency Physicians, Intensivists, Anaesthesiologists and Neonatologists) have only recently followed suit. The first peer-accredited POCUS course for emergency physicians (EPs) was held in South Africa in 2007. This was followed by the introduction of a formal, evidence-based, nationally accredited (Emergency Medicine Society of South Africa) and endorsed (College of Emergency Medicine of South Africa) POCUS curriculum, in 2009.

The curriculum components consist of (1) successful completion of an accredited POCUS course, (2) completion of the on-line test, (3) completion and trainer review of 65 scans, of which one third must have pathology present. This will qualify the candidate for (4) a formal trigger assessment.

Successful candidates become POCUS providers upon demonstrating competency during their formal assessment. Their new provider status is registered on-line (www.emssa.org.za/ultrasound-professionals/) for transparency reasons.

Our college (CEMSA) council has recently recognised the importance of POCUS, for newly trained EPs. All registrars must now submit their POCUS provider certificates before they are granted entry into their final college examinations.

Unfortunately there are not many other formal accreditation programmes for assuring POCUS competency in South Africa. The effect is poor regulation that leads to many non-accredited POCUS training courses and poor provider quality assurance.

General practitioners and specialists, in other fields of medicine, currently oversubscribe our POCUS training structures. However, this demonstrates there is demand and need to converge POCUS training to a single society for all POCUS providers. This has been successfully implemented by our peers in Australia (Australian Society for Ultrasound in Medicine, www.asum.com.au).

The advantages

- A unified forum of experts and trainers (scarce commodity), non-duplication of accreditation, regulation, governance, infrastructure and costs.
- Expansion of the numbers of POCUS providers will eventually lead to the critical mass needed in any discipline to allow it to influence, through lobbying, allied issues such as medical aid billing codes for POCUS providers in the future.

ADDENDUM 2

The Cardiothoracic Anaesthesia Society of South Africa (CASSA) consensus paper for accreditation of anaesthetists in South Africa in peri-operative echocardiography

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SUMMARY

There is a need to develop an accreditation process for South African physicians who practice peri-operative echocardiography. International level accreditation will bring legitimacy to the process of training practitioners in peri-operative echocardiography and ensure standards of practice. Accreditation will be developed as a 2-year process during which candidates with a College Fellowship or MMed degree may register with a supervisor and submit a portfolio of 120 comprehensive echo reports and 5 complete digital studies for assessment. If these are judged to be of an adequate standard, the candidate will be eligible to sit an exam consisting of a MCQ theory and echo video paper and an oral exam.

INTRODUCTION

Peri-operative transoesophageal echocardiography (TOE/TEE) has been utilised by anaesthetists for over 25 years and has become an established imaging modality. TOE is recognised as the gold standard intra-operative cardiac monitor and diagnostic tool in certain cardiac procedures, for example in mitral valve repair and congenital heart surgery.[1] There is evidence that intra-operative TOE provides valuable information which significantly influences clinical management and improves patient outcome.[2] The roles for peri-operative echocardiography have been extended to include intensive care[3] and non-cardiac surgery.[4] Recently the class I indications for peri-operative echocardiography have broadened with both the European Association of Cardiothoracic Anaesthesiologists (EACTA)/European Association of Echocardiography (EAE) Working Group[5] and the American Society of Anaesthesiologists (ASA)/ Society of Cardiovascular Anaesthesiologists (SCA) Task Force,[6] taking the view that it is now reasonable to insert a TOE/TEE probe in every patient undergoing cardiac surgery. In addition, the ASA/SCA guidelines suggest that TEE is used in thoracic aorta surgery and in any patient where haemodynamic instability is expected.[14]

Any clinician using TOE in the areas of peri-operative medicine has the responsibility of performing at an acceptable international standard. Accreditation is a process that establishes and maintains this standard of practice by defining proficiency and recognising it in the practitioner. Accreditation therefore becomes a powerful driver of the learning process as well as bringing legitimacy to the process of training. Accreditation in peri-operative TOE is not a statutory requirement in South Africa, but demonstration of proficiency will become a desirable, if not essential, prerequisite for practice in all disciplines requiring TOE.

A recent guest editorial in SAJAA[10] was written to initiate the debate amongst South African anaesthetists surrounding the topic of accreditation in peri-operative echocardiography. Up to this point, the debate has been continued by cardiac anaesthetists and particularly by members of the Cardiothoracic Anaesthetic Society of South Africa (CASSA), which is a special interest group falling

under the umbrella of the South African Society of Anaesthetists (SASA). We are fortunate in South Africa to be able to follow in the footsteps of organisations in North America and Europe and to benefit from their experience in developing the accreditation process. Importantly, we are able to avoid the pitfalls and controversies that accompanied the introduction of the accreditation processes in the USA and Great Britain.[11]

Accreditation in the United States of America

The accreditation process in the USA was initiated in the mid 1990s and consolidated when the Society of Cardiovascular Anaesthesiologists (SCA) developed their first formal examination in Pre-operative TEE in 1998.[7] The SCA combined forces with the American Society of Echocardiography (ASE) to establish the National Board of Echocardiography (NBE), which had the responsibility to administer examinations and develop a certification process in clinical echocardiography. Certification consists of 2 levels, a basic peri-operative TEE exam (Basic PTEeXam) which is a non-diagnostic, primarily monitoring accreditation and an advanced peri-operative TEE exam (Advanced PTEeXam) which is a diagnostic accreditation. To become board certified in peri-operative echo-cardiography, the candidate has to have passed the NBE exams, have a state licence to practice medicine, hold current medical board certification and satisfy the NBE that required training pathways have been followed. The current pathway requirements are that the candidate has to complete a 1 year fellowship in cardiac anaesthesia. For anaesthetists who qualified before June 2009, experience pathways may be submitted. These consist of a practice experience pathway and a supervised experience pathway. The practice experience pathway requires the candidate to have completed 300 cases over a 2-year period and the supervised pathway requires the candidate to complete 300 cases, 150 of these with the supervisor present. The most contentious issue has been that anaesthetists who pass the exam, fail to progress to full certification because of inability to complete the experience or supervised pathways. These anaesthetists have been awarded testamur status, but are not board certified in peri-operative echo. It is a statutory requirement to have the Basic PTEeXam to use transoesophageal echocardiography (TEE) as a monitor, and the Advanced PTEeXam to use TEE as a diagnostic tool during anaesthesia and in the Intensive Care Unit.

Accreditation in the United Kingdom and Europe

The accreditation process in the United Kingdom was set up as a joint responsibility by the Association of Cardiothoracic Anaesthetists (ACTA) and the British Society of Echocardiographers (BSA) as a service to practicing echocardiographers. The first written examination was in 2002.[8] Accreditation is neither compulsory nor regulatory and there is no grandfather clause. The candidate is expected to enrol with a supervisor who has passed the BSE accreditation process. The candidate is expected to submit a log book of 125 trans-oesophageal echocardiography (TOE) reports, collected over a period of 2 years. If the candidate holds accreditation in transthoracic echocardiography (TTE), he/she will have to submit only 75 TOE reports. The reports must be accompanied by 5 complete digital studies. Within these 2 years, the candidate is expected to pass the written examination which consists of 50% theory and 50% echo loop MCQs. Reaccreditation is awarded every 5 years on the submission evidence of continuous echocardiography practice and attendance of courses.

Europe followed a similar route with EACTA and EAE developing a TOE examination and accreditation process in 2005. Once again, both an examination and logbook within a 2-year period is expected for full accreditation. In 2004, the Japanese Society of Cardio-vascular Anaesthesiologists launched their first TOE competency examination (www.jscva.org/2009). In the UK, collaboration between the Intensive Care Society (ICS) and British Society of Echocardiography (BSE) has led to similar success in accreditation of trans-thoracic echocardiography in critical care. After careful negotiations and planning over the past few years, the first ICS/BSE Accreditation Examination is planned for the end of 2012.

Australasia does not have an accreditation process in TOE but maintain their standards through diplomas and degree qualifications from specific institutions.

ADDENDUM 2 CONTINUED

South African Accreditation

An editorial in SA Heart published in 2010,[12] discussed the expansion of echocardiography from the traditional domain of cardiology into non-cardiology specialties, such as anaesthesia and intensive care and raised questions about the oversight of this expansion, its standardisation and its quality control. In order to begin the process of answering these questions, the initial steps to set up South African accreditation in peri-operative echocardiography have been taken. An echocardiography committee has been convened as a sub-committee of CASSA and tasked with the development of the accreditation assessment. The committee has made contact with cardiology interest groups in South Africa, because it is believed that cooperation between the 2 disciplines of anaesthesia and cardiology is of utmost importance for the success of this venture. It is proposed that these bodies will set up an examination board together. Accreditation will be developed as a 2-year process during which candidates with a College Fellowship or MMed degree will register with a supervisor and submit a portfolio of 120 comprehensive echo reports and 5 video case studies for assessment. If the reports are judged to be of an adequate standard, the candidate will be eligible to sit the exam paper that will consist of a MCQ theory and a video case study section. If successful, the candidate will be invited to the oral examination, where theoretical knowledge and echo image interpretation will be examined. The experience in the UK, where the candidates write the exam and then submit the log book over the following 2 years, has been that some candidates write the exam but fail to complete the log book in time and consequently are not awarded certification. The process of submitting the echo reports is part of the learning process and the success rate of candidates will be improved after 2 years of study and undergoing the process of having their echo studies critiqued by the supervisor.

The first enrolment of candidates is planned for January 2013 with the first accreditation examination to be held in September 2015.

The standard of the submission of reports and echo loops and the standard of the examination should be of an international level, equivalent to the ACTA/BSE accreditation process. In order to ensure this standard, an external examiner will be appointed from the ACTA/BSE accreditation committee. The candidates will be expected to have a thorough knowledge of the science of ultrasound, safety issues and contra-indications to TEE as well as both basic and advanced transthoracic and transoesophageal ultrasound assessment of the heart in the peri-operative setting. Prospective candidates will be encouraged to make use of printed textbooks, digital material and distance learning courses to ensure a comprehensive knowledge of echocardiography. Regional discussion and local echo interest groups are advised as a further aide to gaining experience and furthering the understanding of peri-operative echo.

Reaccreditation will be required every 5 years and will consist of maintenance of a log book, collection of Continuing Education Units via attendance of refresher courses and congresses and submission of comprehensive echo reports and echo case studies only on request of the official accreditation body.

CONCLUSION

Accreditation is a necessary process to ensure proper standardised training in peri-operative echocardiography and to maintain international standards of practice. The process is well under way in South Africa and the first examination is expected to take place in September 2015.

TABLE 1: Proposed process for accreditation in South Africa

	USA	UK/Europe	South African proposal
Compulsory/Regulatory	Yes	No	No
Grandfather Clause	No	No	No
Supervision	Fellowship 1 year	1 year Europe and 2 years UK	2 years
Number of cases required over a 2 year period	300	125 (120 Europe) comprehensive reports and 5 video studies 75 TEE reports if already qualified in TTE	120 comprehensive reports and 5 video studies
Timing of exam	Exam first then reports	Exam first then reports	Reports first then exam
Examination	1 x 1 hour case orientated block and 3 x 1 hour MCQ blocks	50 theory and 50 echo loop MCQs	50 theory and 50 echo loop MCQs plus oral exam
Qualification	Basic Peri-operative TEE (PTEeXam) Advanced Peri-operative TEE (Advanced PTEeXam)	ACTA / BSE TOE Accreditation	Certificate in peri-operative echocardiography
Reaccreditation	10 year reaccreditation exam and log book	5 years – continuing practice and attendance of courses	5 years – maintenance of log book, CEUs and submission of reports and video studies on request.

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