



Departmental Accreditation 02.2008

The British Society of Echocardiography ("BSE") is offering any Echocardiography Department in the UK ("Department") the opportunity to apply for accreditation in accordance with these guidelines ("Applicant"). The BSE grants such accreditation on a purely voluntary basis ("Accreditation"). There may be other Departments which have not sought Accreditation but which offer an excellent echocardiography service. The decision of the BSE to grant accreditation to a Department is only an indication of the BSE's opinion of the standard of that Department. The BSE does not intend the outcome of the Departmental Accreditation process to be relied upon by any person under any circumstance. This shall include, but not be limited to, any Department, any individual medical practitioner, including GPs, any patient, referring health authority and any member of the public. The Accreditation shall be based on sufficient information being provided to the BSE by Applicants in accordance with Appendix A and/or, as the case may be, as a result of an inspection of a Department.

1 Introduction

- 1.1 The BSE cannot guarantee, or be liable in respect of, the quality, efficacy or performance of an Applicant and/or Department either prior to Accreditation or otherwise.
- 1.2 Accreditation of an Applicant or Department shall be determined by all relevant information provided by such Applicant or Department and it is the responsibility of that Applicant or Department to ensure that such information is accurate and up-to-date. The BSE shall not be liable in respect of any decisions made based on such information received.
- 1.3 A process for accreditation in adult echocardiography has been in place since 1994 and for transoesophageal echocardiography since 2003.
- 1.4 However, accreditation of individual echocardiographers alone cannot guarantee a high quality Department. It is also necessary to have adequate machines, management and organisation.
- 1.5 The assessment of cardiac departments as a whole already occurs as part of the British Cardiac Society's ("BCS") Peer Review scheme. More detailed accreditation of Departments could provide the following advantages:
 - 1.5.1 To devolve echocardiographic control giving more local autonomy
 - 1.5.2 To empower an increasing number of Departments to mark log-books and videos for adult accreditation thus accelerating the process and also bringing it more into line with European practice
 - 1.5.3 To facilitate the negotiation of contracts with commissioners and bodies such as Primary Care Trusts
 - 1.5.4 To certify non-cardiac practitioners (e.g. GPwSI, PwSI, nurses) and maintain quality control and continued learning
 - 1.5.5 To encourage improvements in standard by comparison against a nationally-agreed yard-stick
- 1.6 Departmental Accreditation may be applied for in respect of the following four modules:
 - 1.6.1 Transthoracic echocardiography
 - 1.6.2 Transoesophageal echocardiography
 - 1.6.3 Stress echocardiography
 - 1.6.4 Training to BSE adult proficiency standard

If the Department is carrying out *any* Transoesophageal Echocardiogram (“TOE”) or Dobutamine Stress Echocardiogram (“DSE”) then the relevant module form *must* be completed irrespective of whether specific accreditation in these areas is being sought.

- 1.7 Recommendations in respect of the standards required for each of these modules are given in sections 3-6. It should be noted that the recommendations contained in section 3-6 below are guidance only and that the standards required for each of the modules may be subject to change at the discretion of the BSE.
- 1.8 The standards to which the Departments will be compared against are set out below in the separate section ‘Criteria for Grading’. There are two levels of grading: standard and advanced. To achieve advanced Accreditation, all aspects of a Department’s work must be accredited at standard level and the requirements for advanced transthoracic accreditation met. Standard Accreditation fulfils the basic requirements for an adequate echo service, while advanced accreditation offers a higher level of service including more rigorous quality control. Please note that, as stated above, Departmental Accreditation is a voluntary process. Whilst the BSE is keen to work with Departments to help them achieve these standards and does not expect all departments to reach all standards in all areas, it has the ultimate discretion as to whether to accredit a Department.
- 1.9 Throughout this document, the term ‘sonographer’ is used to mean a non-medical echocardiographer and subsumes the terms clinical physiologist, cardiac or echocardiography technician and radiographer.
- 1.10 It should be noted that Echocardiography is changing rapidly and it is expected that this document will be reviewed in response to developments including screening echocardiography, portable systems, agenda for change and the training of GPwSI and other non-cardiologists in echocardiography. This document should therefore only be viewed as a general guide and the guidance and criteria for Accreditation contained in this document may be subject to change at the ultimate discretion of the BSE.
- 1.11 The registration fee for Departmental Accreditation is £500. These fees will cover the cost of administration and also of organising accreditation visits where applicable.

2 Process

- 2.1 The Applicant completes an application form, in substantially the same format as set out in Appendix A, and pays a non-refundable registration fee.
- 2.2 The BSE Accreditation Committee assesses the application against the standards set out in the ‘Criteria for Grading’ section below and decides whether the institution deserves Accreditation and to what level. If it is felt that an Inspection is needed in order to clarify or confirm information supplied on the application form, this will be undertaken at a mutually agreeable time. It should be noted that BSE has the ultimate discretion as to whether to inspect and also to decide whether a department deserves Accreditation. The ‘Criteria for Grading’ set out below should be viewed as guidance only.
- 2.3 The Applicant is informed whether or not Accreditation is awarded and at which level for each of the specialty areas for which it has been requested.
- 2.4 A Department can claim BSE Accreditation for those areas in which BSE is of the opinion that it has reached the required standard e.g. ‘BSE-Accredited department for the provision of transthoracic echocardiography in adults and for training to BSE adult proficiency level’.
- 2.5 An unsuccessful Applicant may be notified of the areas requiring improvement and invited to re-apply when these have been addressed. The BSE will use its best endeavours to offer advice and support to help achieve this. An unsuccessful applicant may Appeal the decision of the Accreditation Committee on the grounds, and following the process set out in section 8.
- 2.6 Inspection of an Accredited Department may be performed as part of the BCS peer review process or on a random basis following reasonable notice by the BSE (see section 7). Following inspection, a Department will be assessed as satisfactory or unsatisfactory in the areas in which

it has been accredited. An 'unsatisfactory' department will be given up to 12 months, during which time its Accreditation may be suspended, to remedy areas of concern. Failure to demonstrate the required improvement will result in loss of Accreditation.

- 2.7 A department whose Accreditation has been suspended or removed may appeal the decision, following the procedure laid down in section 8.
- 2.8 Accreditation lasts for 5 years, and can then be re-applied for.
- 2.9 If there is a change of Technical or Clinical Head of Department during an Accreditation period, the BSE should be informed within 6 months.
- 2.10 The BSE has the right to suspend a Department's accredited status under the following circumstances:
 - 2.10.1 In accordance with section 2.6 above, if following inspection, a Department is assessed as unsatisfactory in the areas in which it has been accredited;
 - 2.10.2 If it has reason to believe that that the safety of the public, or the public interest is seriously endangered. The BSE may suspend a Department while it decides whether or not to withdraw approval, where it has decided to withdraw approval but before the decision takes effect, or while any appeal is pending;
 - 2.10.3 If it believes that its reputation is being damaged or likely to be damaged in any way whatsoever as a result of Accreditation of a Department;
 - 2.10.4 If a Department or any member of such Department is subject to any investigation, formal or otherwise; or
 - 2.10.5 If it does not reasonably consider a Department to be worthy of Accreditation, for any reason whatsoever.
- 2.11 The BSE may remove a Department's accredited status in the following circumstances:
 - 2.11.1 In accordance with section 2.6 above, if following inspection, a Department is assessed as unsatisfactory in the areas in which it has been accredited and is consequently suspended, and it fails to remedy the areas of concern within 12 months;
 - 2.11.2 If it has reason to believe that that the safety of the public, or the public interest is seriously endangered;
 - 2.11.3 If it believes that its reputation is being damaged or likely to be damaged in any way whatsoever as a result of Accreditation of a Department;
 - 2.11.3 If a Department or any member of such Department is subject to any investigation, formal or otherwise; or
 - 2.11.4 If it does not reasonably consider a department to be worthy of Accreditation, for any reason whatsoever.
- 2.12 The BSE shall comply with the provisions of the Data Protection Act 1998 ("DPA") and, to the extent that it is a Data Processor (which has the meaning given to it under the DPA), it shall put in place:
 - 2.12.1 Appropriate technical and organisational measures against the processing of Personal Data (which has the meaning given to it under the DPA) and against unauthorised, accidental or unlawful access to the Personal Data (having regard to the state of technological development and the costs of implementing any such measures) as well as reasonable security programmes and procedures for the purpose of ensuring that only authorised personnel have access to the Personal Data processing equipment and that any persons whom it authorises to have access to the Personal Data shall respect and maintain due confidentiality;

- 2.12.2 A level of security programmes and procedures which reflect:
- (a) the level of damage which may be suffered by a Data Subject (which has the meaning given to it under the DPA) to whom the Personal Data relates as a result of unauthorised or unlawful possession of the Personal Data; and
 - (b) the state of technological development and the costs of implementing such procedures and programmes; and
- 2.12.3 As required by the DPA, such security programmes and procedures which specifically address the nature of any Sensitive Personal Data (which has the meaning given to it under the DPA).
- 2.13 The Applicant acknowledges that it shall comply with the relevant data protection statement as set out in Appendix A.

3 Standard 1 -Transthoracic Echocardiography

3.1 Recommendations for staffing and training.

- 3.1.1 All centres should have both a specialist Technical and Clinical Head of Department.
- 3.1.2 The Clinical Head should have specialist echocardiographic training and ideally hold individual Accreditation. His/her job description should include setting clinical guidelines and policy, performing studies, training doctors and sonographers, audit, clinical meetings and quality control. He/she should set up a system for reviewing requests and reports, and urgent clinical review in response to findings at echocardiography. In a District General Hospital performing 3000 studies per year, at least one session per week should usually be allocated directly to echocardiography.
- 3.1.3 The Technical Head should be responsible for performing studies, audit, service improvement, training doctors and sonographers and liaising with Occupational Health and the Works Department. The Technical Head should hold BSE accreditation and be graded at least Band 7.
- 3.1.4 Sonographers performing and reporting studies unsupervised should be BSE accredited and at least band 6 and typically band 7.
- 3.1.5 Continuing education should be provided (and funded) to fulfil BSE re-accreditation requirements or to a similar level. There should be a small library of relevant reference textbooks within the Department.
- 3.1.6 The job profile of a sonographer includes training, self-education, audit, and quality control in addition to performing echocardiograms.

3.2 Recommendations for organisation and equipment.

- 3.2.1 Echo rooms used for inpatients on beds should be at least 20 m² in area
- 3.2.2 Ventilation, heating, lighting and ancillary facilities must be appropriate (see Appendix A)
- 3.2.3 Echo machines must have the capacity for imaging including second harmonic imaging, colour mapping, pulsed Doppler and both steerable and stand-alone continuous wave Doppler. Ideally tissue Doppler should also be available.
- 3.2.4 A single echo machine can handle up to a maximum of 2500 studies each year but this figure will be lower if there is a significant ward-based or complex workload
- 3.2.5 The machine should be serviced regularly, and be replaced or have a major upgrade at least every 5 years

- 3.2.6 There must be consideration of patient comfort, privacy, dignity and provision of adequate information
- 3.2.7 There must be awareness of health and safety issues especially relating to back and eye problems and adequate liaison with occupational health and risk management departments (see appendix B)
- 3.2.8 A report database should exist, with facilities for storing and retrieving specific echo studies.
- 3.2.9 A separate viewing room is recommended for reviewing studies and off-line reporting
- 3.2.10 There should be appropriate storage space
- 3.2.11 A patient information leaflet should be available

3.3 Recommendations for performing studies.

- 3.3.1 A standard transthoracic study (one TTE equivalent) takes 30 minutes. Training may prolong this to 45 minutes (1.5 TTE equivalents). A complex study (e.g. including contrast injection or detailed valve haemodynamic assessment) may take up to 1 hour (two TTE equivalents). As an ideal, allowing for all aspects of the job profile, a sonographer will perform no more than 2000 studies per year
- 3.3.2 A list of indications for echocardiograms should be agreed
- 3.3.3 Prioritising and filtering, of inappropriate requests should be performed by sonographers supported by the Clinical Head
- 3.3.4 Minimum standards for studies should be established. Study protocols appropriate to specific clinical conditions should be established
- 3.3.5 A format for reports should be established, including who should issue conclusions and who is qualified to sign reports
- 3.3.6 The requirements of the Data Protection Act 1998 must be complied with regarding data storage
- 3.3.7 Reports from routine studies should usually be issued on the day of the examination. For urgent or inpatient studies, at least a preliminary report should usually be issued immediately.
- 3.3.8 A mechanism must be in place for reporting cases that require urgent clinical attention.
- 3.3.9 Regular meetings, ideally weekly, should be held to review unusual, challenging or otherwise difficult cases.
- 3.3.10 A formal quality assurance system should be in place with regular blind over reading of selected studies to ensure consistency of performance and interpretation. Meetings should take place at least 4 times per year with all echocardiographers attending at least 50%.

4 Standard 2 -Transoesophageal Echocardiography (TOE)

All the standards for transthoracic echocardiography in addition to the following:

4.1 Recommendations for staffing and training.

- 4.1.1 All centres should have a designated Head of TOE. This will usually be the Clinical Head of Echocardiography
- 4.1.2 Outpatient TOE studies require an operator with appropriate training, a cardiac-trained nurse with experience in managing airways and, ideally, a sonographers
- 4.1.3 Continuing education must be provided for the operators

- 4.1.4 Each operator should perform or directly supervise at least 50 studies per annum
- 4.1.5 Ideally operators should have BSE/ACTA/EAE TOE accreditation
- 4.1.6 A list of indications for TOE should be agreed

4.2 Process

- 4.2.1 Minimum standards for studies should be established and the head of TOE must be responsible for ensuring that all operators adhere to them
 - 4.1.1 A preoperative checklist should be used
 - 4.1.2 Whenever sedation is used, it should be in accordance with the recommendations given in 'Implementing and Ensuring Safe Sedation Practice for Healthcare Procedures in Adults' published by the Academy of the Royal Colleges in 2001
 - 4.1.3 The TOE probe must be checked electrically at a frequency dependent on usage. A log of these checks must be kept
 - 4.1.4 The TOE probe should be cleaned regularly

4.2 Recommendations for organisation and equipment

- 4.2.1 There should be appropriate provision of:
 - Room (ideally > 25 m² in area)
 - Couch with facility for head-down tilt
 - Facilities for cleaning and sterilising the probe.
 - Storage cupboard for the probe
 - Resuscitation apparatus and drugs
 - Lockable drug cupboard
 - Suction
 - Oxygen
 - Pulse oxymeter
 - Sphygmomanometer
 - Facilities for recovery of the patient
 - Protocols for patient care (example Appendix C).

5 Standard 3 - Stress Echocardiography

All the standards for transthoracic echocardiography in addition to the following:

5.1 Recommendations for staffing and training.

- 5.1.1 All centres should have a designated Head of Stress Echocardiography, normally the Clinical Head of Department
- 5.1.2 Stress echocardiography studies require an experienced operator and a sonographer or trained nurse
- 5.1.3 The study reporter must be specially trained in stress echocardiography
- 5.1.4 There must be a mechanism in place for feedback to assess clinical correlation
- 5.1.5 Each operator/reporter should perform or directly supervise at least 100 studies per annum
- 5.1.6 Continuing education must be provided for the interpreter
- 5.1.7 At least one member of staff performing the study should possess at least Immediate Life Support (ILS) Training or be a specialist cardiologist

- 5.1.8 A list of indications for stress echocardiograms should be agreed
- 5.1.9 Appropriate protocols for studies should be established and the Head of Stress Echocardiography must be responsible for ensuring that all operators adhere to them

5.2 Recommendations for organisation and equipment

Ideally there should be appropriate provision of

- Designated room (size >25 m²)
- Stress echocardiography software
- Contrast agents and contrast specific software
- Infusion syringe for pharmacological stress or equipment for exercise stress e.g. bicycle
- ECG monitor and recorder
- Sphygmomanometer
- Resuscitation apparatus and drugs readily available

6 Standard 4 –Training to BSE Proficiency Standard

The centre must be accredited in transthoracic echocardiography at standard level.

6.1 Recommendations for staffing and training

- 6.1.1 Each centre must have a BSE Accredited individual responsible for training. This person may be from a Clinical or Technical background
- 6.1.2 Staffing levels and workload appropriate to the number of trainees to ensure adequate clinical capacity. A guide would be two BSE accredited staff and 2000 echoes p.a. for a department to accommodate one trainee
- 6.1.3 At least one, and ideally two protected tutorial half-day sessions per week for both trainer and trainee
- 6.1.4 Access for both trainer and trainees to local, national and international meetings
- 6.1.5 Regular weekly Departmental case review sessions

6.2 Recommendations for equipment

- 6.2.1 Core library e.g. 3 up to date echo textbooks and 1 general cardiology textbook in the Department and access to cardiology journals electronically or within the hospital
- 6.2.2 Training material-tapes/CDs/digital cases, etc.
- 6.2.3 Internet access should be available to all staff

6.3 Performance

- 6.3.1 History of success in training students to BSE proficiency/similar level

7 Departmental Inspections (“Inspection”)

7.1 Purpose

The purpose of an Inspection is solely to determine whether or not information submitted on Accreditation Application Forms is currently accurate. It should be noted that Inspections will be undertaken at the ultimate discretion of BSE.

7.1.1 Process

- 7.1.2 Most Inspections will be randomly selected, but they may also be undertaken if the Department appears to have changed significantly since the original submission.
- 7.1.3 At least 28 working days' notice will be given of any Inspection visit. Proposed visits will be re-scheduled only in special circumstances (e.g. Technical Head on leave)
- 7.1.4 Inspections will normally be undertaken by two people nominated by the BSE Accreditation Committee, one of whom will normally be a doctor who is him/herself a Clinical Head of Echocardiography in a department of similar size, and the other a sonographer who is him/herself a Technical Head of a similar department.
- 7.1.5 The costs of an Inspection initiated by the BSE will be borne by the society.
- 7.1.6 Inspectors will bring with them copies of Accreditation Forms submitted, together with any amendments. They will:
 - Check that equipment and facilities are as claimed
 - Observe selected patient studies
 - Check a sample of clinical and technical reports
 - Interview Clinical and Technical heads of Department, plus approximately one-third of other staff and trainees
 - Inspect daybooks, appointment diaries, etc.
 - At the end of the Inspection, hold a meeting with the Clinical and Technical Heads, at which any apparent discrepancies between data on the Accreditation Application and observed practice will be highlighted

This list is not exclusive and that Inspections will differ from time to time.

7.2 Assessment

- 7.2.1 The inspectors will submit a written report of their findings to the BSE Accreditation Committee. After discussion within the Committee, the Chairman will write to the Clinical and Technical Heads of the department concerned. This letter will be sent within 60 days of the Inspection and will offer one of the following conclusions for each category of Accreditation applied for or held:
 - 7.2.1.1 Confirmation of Accreditation at the level already assigned
 - 7.2.1.2 Re-grading of the Department's rating (see 2.3)
 - 7.2.1.3 Suspension of Accreditation in accordance with section 2.10 above.
Suspension will normally be for a period of six months. When the department believes that the deficiencies have been addressed, the Clinical or Technical Head can apply in writing to the Accreditation Committee to request removal of the suspension
 - 7.2.1.4 Removal of Accreditation in accordance with section 2.11 above. In this case a new Application (and accompanying Fee) will have to be made.
 - 7.2.1.5 A certificate signed by the President of the BSE will be provided following grant of any application and indicating the standard achieved in each discipline.

8 Appeals (“Appeals”)

- 8.1 Where a Department considers that the BSE has unfairly refused, regraded, suspended or removed Accreditation, written appeal to the BSE Council. Appeals may be made only on the following grounds:
 - 8.1.1 That the decision was affected by bias or breach of the Society's guidelines for Centre Accreditation
 - 8.1.2 At an Inspection, the inspectors did not carry out the inspection in accordance with the procedure set out in section 7

- 8.1.3 That conditions prevailing at the time of the inspection were unusual and temporary (e.g. several key staff off sick)
- 8.1.4 That information provided to the inspectors was incomplete or inaccurate
- 8.2 An Appeal will be considered by the BSE Council at its discretion (or a panel nominated by the Council for this purpose and containing at least 3 elected Council members). No member of the Appeal panel shall have taken part in the Inspection, or have any current or past association with the Centre concerned. The findings of the Appeal panel will be sent to the Department within 90 days of the Appeal being lodged and shall be final.

CRITERIA FOR GRADING

TRANSTHORACIC

Standard	Advanced
<p>Both clinical and technical heads of echocardiography</p> <p>Clinical head Has at least one PA dedicated to echo</p> <p>Technical head spends 5 or more sessions in echocardiographic activities (including management or quality control)</p> <p>Agreed minimum standards for studies</p> <p>Patient information leaflet available including arrangements for chaperones</p> <p>List of indications for echo published internally</p> <p>Triaging of requests</p> <p>Report database</p> <p>System of review for uncertain echocardiograms</p> <p>System of alerts for important pathology found at echocardiography</p> <p>Provision for continuing education</p> <p>Studies archived. Reports written that day</p> <p>Most machines have 2nd harmonic imaging</p> <p>All machines have colour and stand-alone Doppler</p> <p>No machine in regular use upgraded more than 10 years ago</p> <p>30-40 minutes allowed per standard study and up to 1 hour for a complex study</p> <p>All sonographers reporting studies Band 6 or higher</p> <p>Data protection act applied</p> <p>Manual handling policy implemented</p> <p>Rooms uncluttered and of adequate size</p> <p>Appropriate provision of patient facilities</p>	<p>Both technical and clinical heads have BSE accreditation</p> <p>Formal and systematic quality control in place</p> <p>Technical Head spends 8 or more sessions in echocardiography</p> <p>Clinical Head spends 2 or more sessions in activities directly related to echocardiography</p> <p>Digital archiving</p> <p>No machine in regular use older than 5 years</p> <p>All trained sonographers BSE accredited</p> <p>One or more rooms at least 20 m² in area</p> <p>One WTE sonographer for no more than 2000 standard and complex studies per annum</p> <p>System of liaison with other departments to advise about timing of or results of studies</p> <p>A patient information leaflet available</p> <p>Adequate storage space</p>

TRANSOESOPHAGEAL

Standard
Designated Head of TOE
Head of TOE has BSE/EAE accreditation
Each operator performs > 50 studies each year
Designated person, usually a nurse, to manage airway and recover the patient
Recovery area
Minimum standards for studies established
List of indications for TOE agreed internally
Patient information leaflet sent out
The following equipment:
➤ Resuscitation equipment
➤ Omniplane probe
Routine use of:
➤ Oxygen
➤ Pulse oximeter
➤ BP monitor
➤ Patient preparation including letter and pre-procedure check-list
Appropriate arrangements for cleaning/sterilisation of probes
Room at least 25 m ² in area
Provision for continuing education
Provision for quality control
Sedation used according to published guidelines

STRESS ECHOCARDIOGRAPHY

Standard
Designated Head of Stress Echocardiography
Head maintains CME for stress echo
Audit of results against angiography or other independent standard
More than 100 studies each year per reporting operator
Patient information leaflet sent out
Machine capable of changing MI and with digital stress echo package
Studies performed by at least two people At least one must have ILS or equivalent
If a doctor is not present they must be immediately available
Blood pool contrast available
Machine with 2nd harmonic imaging
Resuscitation facilities readily available

BSE TRAINING

Standard	Advanced
<p>All standard sections of transthoracic echocardiography</p> <p>Designated Head of Training who is BSE accredited</p> <p>One protected training sessions each week for each trainee</p> <p>In house assessment programme</p> <p>Departmental training or business meetings at least once each week</p> <p>Internet access</p> <p>Textbooks of basic and advanced echocardiography and general cardiology</p> <p>Full range of adult pathology either on site or supplemented by visits to a near-by centre</p> <p>Attendance at one conference each year for trainer and trainee</p>	<p>All advanced sections of transthoracic echocardiography</p> <p>Accreditation in TOE and DSE</p> <p>Full range of adult pathology on site</p> <p>Extensive library including CD, or other case material</p> <p>History of success in passing candidates for BSE adult accreditation, ideally more than 3 candidates within the last 3 years.</p> <p>Formal written training programme available</p>

APPENDIX A: Application Forms for Department Accreditation

Name of Department:

ASSESSMENT FORM 1: Transthoracic Echocardiography – see below for additional documentation required

Staff and Training		
Name of Clinical Head of Department		
Position e.g. Cardiologist / Physician / Clinical Assistant /GP/ Other		
Qualifications		
Number of PAs dedicated to echo per week		
BSE Accredited Yes <input type="checkbox"/> No <input type="checkbox"/>		
Name Technical Head of Department		
Grade		
Qualifications		
Number of dedicated echo sessions per week		
BSE Accredited Yes <input type="checkbox"/> No <input type="checkbox"/>		
Number of other whole time equivalent sonographers in the department		
Grade and Accreditation Status of Sonographers		
Sonographer	Grade	BSE Accreditation (year and BSE membership number)
Are there regular review meetings?		Yes <input type="checkbox"/> No <input type="checkbox"/>
i. How frequent?		
ii. How many cases are reviewed?		
iii. How are cases chosen?		
iv. Provide List of attendees and grade for the last 3 months		X
v. Provide a log of anonymised cases for four consecutive meetings		X

What books/CDs/tapes are available for reference / teaching?		
Name of book/CD/tape	Author	Year of publication

List Echo journals currently subscribed – in department or hospital library Names of Journals (e.g. JASE, EJE)	
Is there internet access for echocardiography staff?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is there support for continuing education e.g. to fulfil BSE re-accreditation requirements, attend external meetings?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, provide a list of who went to what and when for the last year
Have all BSE-accredited sonographers eligible for re-accreditation achieved it? If not, please provide details?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, provide a list of who has re-accredited and when

ORGANISATION AND EQUIPMENT							
Number of echo machines							
<i>Details of machines:</i>							
Machine	1(e.g.)	1	2	3	4	5	6
Manufacturer	GE						
Name	Vivid 7						
Year of purchase/major upgrade	2005						
Colour flow Doppler	Y/N						
Harmonic imaging	Y/N						
Digital acquisition	Y/N						
Digital Storage	Y/N						
Stand alone probe	Y/N						
Stress specific software	Y/N						

Tissue Doppler Imaging	Y/N								
Contrast specific software	Y/N								
3D	Y/N								
How many examination rooms are dedicated to echocardiography?									
Are the echo rooms > 16.5 m ² for ambulatory patients and >20m ² bed patients?					Yes <input type="checkbox"/> No <input type="checkbox"/>				
Echo Room	1	2	3	4					
Area (m2)									
Variable lighting?									
Hand washing?									
Air conditioned?									
Adaptable beds?									
Please provide a timetable for each echo room for each session during the working week detailing the type of scans performed and average numbers									X
Are provisions for staff health and safety issues and manual handling policy in place?					Yes <input type="checkbox"/> No <input type="checkbox"/>				
Is there information for patients about locating Department?					Yes <input type="checkbox"/> No <input type="checkbox"/> (If Yes, please provide a copy)				
Is there a dedicated waiting area?					Yes <input type="checkbox"/> No <input type="checkbox"/>				
How many patients can be accommodated?									
Is there information about procedures for patients?					Yes <input type="checkbox"/> No <input type="checkbox"/> (If Yes, please provide a copy)				
Is there provision for patient comfort and privacy?					Yes <input type="checkbox"/> No <input type="checkbox"/>				
How many formal complaints have there been in the last 2 years? How was each complaint dealt with – please detail on a separate sheet									
Are the echo machines networked to central digital storage?					Yes <input type="checkbox"/> No <input type="checkbox"/>				
How are studies archived? (video/removable digital device/central digital archive)									
Is there a report database?					Yes <input type="checkbox"/> No <input type="checkbox"/>				

Details of Studies performed									
How many studies are performed in the last 12 months?									
Approximately what percentage of studies are Performed and Reported by:									
<i>Consultants</i>		<i>Junior Doctors</i>		<i>Clinical Assistants</i>		<i>Sonographers</i>		<i>Others</i>	
P	R	P	R	P	R	P	R	P	R
%	%	%	%	%	%	%	%	%	%
Length of time allocated for a routine study					minutes				
Are Requests triaged?					Yes <input type="checkbox"/> No <input type="checkbox"/>				

Who prioritises and filters requests? (Names and grades)		
Please provide on a separate sheet anonymised reports for the date identified to you by the BSE office. For each patient please indicate the clinical priority (emergency/urgent/routine), whether an inpatient or outpatient and the delay between the request and the performance of the scan.		X
Is there a minimum standard protocol?	Yes <input type="checkbox"/> No <input type="checkbox"/> (If Yes, please provide a copy)	
Does data storage comply with the Data Protection Act 1998	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are there formal Quality Control and Audit procedures? Please provide details on a separate sheet. These details should include the frequency of meetings, nature of audit/QC processes, and register of attendees for the last 12 months. In an appendix, provide copies of the last 3 actual audit presentations with the date on which they were presented and to whom.	Yes <input type="checkbox"/> No <input type="checkbox"/>	X

Briefly describe the process for writing reports, and the staff involved			
Approximately what percentage of reports are issued			
<i>The Same Day</i>	<i>Within 48 hrs</i>	<i>Within 7 days</i>	<i>Other (please detail)</i>
%	%	%	%
What is the procedure for cases requiring urgent clinical attention?			
Who is available, and how accessibly, to discuss queries and provide clinical support for difficult cases: a. who is called and grade. (e.g. Consultant or Reg, on call) b. response time (1-2 hours, same day, next day) c. if no one available to review and pathology thought to be important, who is contacted and how quickly?			
Out of hours studies			
Do you provide an out of hours service	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Are there indications for an out of hours study	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Who does them, job title grade and experience?			
Are they properly recorded (i.e. are images available for review by the head of	Yes <input type="checkbox"/> No <input type="checkbox"/>		

department)?		
Are they archived and reported centrally?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
What percentage are reviewed by a senior member of staff?	%	
What is the average waiting time for:		
a routine outpatient study	a routine inpatient study	an urgent inpatient study

ASSESSMENT FORM 2: Transoesophageal Echocardiography

NOTE: Form 1 must also be completed

Staff and Training				
Name of Clinical Head for TOE				
Position e.g. Cardiologist / Surgeon / Anaesthetist / Sonographer/ Other				
Qualifications				
How many other trained TOE operators are there?				
How many trainees are there?				
Is nursing support available for Outpatient TOE studies?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Do all trained operators maintain CPD for TOE?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
List CPD obtained in the last 12 months for TOE for each trained operator				
Organisation and equipment				
Are there regular TOE lists		Yes <input type="checkbox"/> No <input type="checkbox"/>		
How often are the lists?				
What is the total number of TOEs performed per year?				
TOE studies performed and reported, or directly supervised per year by each trained operator:				
	Grade e.g. SpR	BSE/ACTA TOE Accredited	BSE Adult TTE Accredited	Number of TOE studies
Clinical Head		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Operator 1		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Operator 2		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Operator 3		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
How many TOE Probes are there?				
Are they kept in a dedicated storage cupboard?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is a Perioperative TOE service provided?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is an 'Out of Hours' TOE service provided? If so by whom (grade and experience)		Yes <input type="checkbox"/> No <input type="checkbox"/>		
In relation to the Outpatient TOE service:				
Where does it take place? Echo Department / Endoscopy Suite / Cath Lab / (Other)				
Is the room size >25m ² ?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Are resuscitation apparatus and drugs nearby?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is there suction?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is there oxygen?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is there a pulse oximeter?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is there a sphygmomanometer?		Yes <input type="checkbox"/> No <input type="checkbox"/>		
Is there a lockable drug cupboard?		Yes <input type="checkbox"/> No <input type="checkbox"/>		

Are there facilities for patient recovery?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Are there facilities for cleaning and sterilising probes?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Are there protocols for patient care?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is there a log of electrical checks on the TOE probe(s)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Describe briefly the process for probe cleaning	
Details of Studies performed:	
Is an information leaflet / letter sent to outpatients?	Yes <input type="checkbox"/> No <input type="checkbox"/> (If Yes, please provide a copy)
Is there a list of indications for TOE	Yes <input type="checkbox"/> No <input type="checkbox"/> (If Yes, please provide a copy)
Is a formal pre procedure checklist used?	Yes <input type="checkbox"/> No <input type="checkbox"/> (If Yes, please provide a copy)
Are patients formally consented prior to the procedure?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If patients are consented, is it written / verbal	
How many staff (in addition to operator) assist for routine studies?	
How are images stored? (video, removable digital device, networked digital storage)	
Are reports issued by the clinician / sonographer / Other	
Are TOE studies regularly reviewed at departmental meetings?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Are there formal procedures for quality control/audit?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, please provide details on a separate sheet. In an appendix, provide copies of the last 3 actual audit presentations with the date on which they were presented and to whom.
What is the waiting time for a routine outpatient TOE?	

ASSESSMENT FORM 3: Stress Echocardiography

NOTE: Form 1 must also be completed

Staff and Training					
Name of Clinical Head for Stress Echo					
Position e.g. Cardiologist / Radiologist / Sonographer/ Other					
Qualifications					
Number of PAs dedicated to DSE					
How many other trained Stress Echo performers					
How many other trained Stress Echo interpreters					
How many trainees?					
Is nursing support available for Outpatient Stress Echo studies?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Do all trained operators maintain CPD for DSE?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
List CPD obtained in last 12 months for each trained operator					
Organisation and equipment					
Total number of stress echoes performed in the Department per year					
Number pharmacological					
Number exercise					
How frequently are stress echo lists performed?					
How many patients are routinely scanned on a list?					
Stress Echo studies performed and reported, or directly supervised per year by each trained operator:					
	Grade e.g. SpR	ILS Certificated	BSE Adult TTE Accredited	No of studies Performed	No of studies Interpreted
Clinical Head		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Operator 1		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Operator 2		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Operator 3		Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>		
How many sonographers are at least ILS certificated?					
In relation to the Outpatient Stress Echo service:					
Is the room size >25 m ² ?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Are resuscitation apparatus and drugs available?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is there an ECG machine?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is there a sphygmomanometer?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is there a syringe driver (for pharmacological stress)		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is there a lockable drug cupboard?		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Is there digital data acquisition and analysis?		Yes <input type="checkbox"/> No <input type="checkbox"/>			

Are there protocols for patient care?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is contrast used	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, by infusion or bolus injection (please circle)	Yes <input type="checkbox"/> No <input type="checkbox"/>
Details of Studies performed:	
Is an information leaflet / letter sent to outpatients?	Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes please provide a copy
Are the studies normally performed by a doctor / sonographer / (Other)	
How many staff (in addition to operator) assist for routine studies	
Are reports issued by the clinician / sonographer / (other)?	Clinician <input type="checkbox"/> Sonographer <input type="checkbox"/> (Other) <input type="checkbox"/>
If the supervising doctor is not present in the room where are they, and what are the arrangements to contact them if necessary? How quickly can they attend? Are reports issued by one interpreter or following team discussion?	
Please give details of any complications experienced from stress echo in the last year	
What is the waiting time for stress echocardiography?	
Are stress echoes routinely reviewed at departmental meetings?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Are there formal procedures for quality control/audit?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, please provide details on a separate sheet. In an appendix, provide copies of the last 3 actual audit presentations with the date on which they were presented and to whom.

ASSESSMENT FORM 4: Training to BSE Proficiency Standard

NOTE: Form 1 must also be completed

Staff and Training			
Designated Head of Training			
Position e.g. Cardiologist / Sonographer/ Other			
Qualifications			
How many years echo experience?			
Is BSE adult transthoracic accreditation currently held?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Year awarded BSE adult transthoracic accreditation			
If not a holder of BSE adult transthoracic accreditation, please describe training and experience in echocardiography			
Number of dedicated half-day echo scanning sessions per week		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Number of dedicated half-day echo training sessions per week			
Has the head of training had formal training as a teacher/trainer?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Other Staff			
Number of other whole time equivalent trained echocardiographers			
Number of echocardiographers currently holding BSE Adult Accreditation			
Total number of dedicated training sessions offered			
Number of echo trainees:			
Sonographers	Doctors	Nurses	Others
How many trainees have been awarded BSE accreditation in the last 2 years?			
List on a separate sheet CPD obtained by head of training in last 2 years			
Performance			
What is the length of time allocated for routine studies when training?			
Are trainees supervised by:			
Lead trainer only <input type="checkbox"/>	Other BSE Accredited staff <input type="checkbox"/>	Other technical staff <input type="checkbox"/>	Doctor <input type="checkbox"/>
Is Trainee supervision withdrawn when:			
Trainee is awarded BSE Accreditation <input type="checkbox"/>	Head of Training decides deems trainee competent <input type="checkbox"/>	Another trainer deems trainee competent <input type="checkbox"/>	

This Department confirms that all information provided in completing these forms is true and accurate as at the date of this application and agrees to notify the BSE immediately of any material variation to such information or of anything that is likely to impact upon this application process. This Department also acknowledges that the Accreditation is provided merely as guidance and that the BSE does not guarantee that such Accreditation will result directly or otherwise in the Department gaining a commercial or financial advantage or any other benefit whatsoever, including, but not limited to, any impact of such Accreditation on this Department's ability to retain and/or recruit staff, and/or its ability to win and/or apply for tenders in respect of new contractual arrangements with any health bodies.

Signature.....

The Department confirms that any personal data supplied in connection with this application process has been provided to the BSE with the consent of the individual to whom such data applies and has complied fully with the Data Protection Act 1998 ("DPA") in the provision of such data. The Department confirms that all such individuals agree to their personal data being processed by the BSE in accordance with the DPA for the purposes of this application process and/or otherwise in connection with the Accreditation¹.

¹ *Kevin: please can we discuss what procedures the BSE shall put in place to protect any personal data.*

Appendix B - Room Specifications

Summary of Workplace Health, Safety and Welfare Regulations, 1992
(Published by Unison, Unison Centre, Holborn Tower, 137 High Holborn, London WC1V 6PL)

The Workplace Health, Safety and Welfare Regulations 1992

These regulations apply to existing echo scanning rooms and all new rooms. They arise out of the European Workplace Directive and are mainly concerned with minimum standards for the work place. Regulations with relevance to an echo scanning room or Department concern:

1 Ventilation (Regulation 6). In enclosed workplaces you must be provided with effective and suitable ventilation, which does not cause uncomfortable draughts e.g. ceiling-mounted.

2 Temperature (Regulation 7). During working hours the temperature in the workplace must be reasonable. The approved codes of practice (ACOP) do not give a maximum temperature but still recommend air cooling plants and shading windows. The minimum working temperature is at least 16 degrees C². A thermometer should be provided in the scanning room if the temperature is uncomfortable.

3 Lighting (Regulation 8). Every workplace should have suitable and sufficient lighting³ and where possible natural light.

4 Room dimension and space (Regulation 10). Every workroom should have sufficient floor area height and unoccupied space allowing for a minimum of 11 cubic metres per person (assuming the room is 3 metres high). Area taken up by equipment or furniture is additional to this space allowance.

5 Workstations and seating (Regulation 11). Every workstation must be suitable for the worker using it and the work being carried out. The echo machine and the patient on the couch are classed as the workstation. Suitable seating (with height adjustment and back support) should be provided when this work is done sitting down with a foot rest if necessary.

6 Toilets (Regulation 20). Staff toilets should be provided in readily accessible places. One toilet with washbasin should be provided for 1 to 5 members of staff. This may be more applicable to a suite of scanning rooms and may already be provided when the scanning rooms are situated in a cardiac Department.

7 Washing facilities (Regulation 21). Suitable and sufficient washing facilities should be provided at readily accessible places. Ideally a washbasin with hot and cold water, soap and a means of drying can be situated within the scanning room itself.

² The NHS Estates ultrasound room data sheets specify a minimum temperature of 20°C

³ This is also covered in the EEC *Display Screen Equipment Regulations*, 1992

Appendix C - Health and Safety

Extracts from the Display Screen Equipment Regulations 1992

Published by Unison, Unison Centre, Holborn Tower, 137 High Holborn, London WC1V 6PL

Under these regulations the echo machine is classed as the workstation (and any PC used in the room e.g. for reporting echo scans) and the user is the employee who habitually uses the display screen equipment as part of his/her job. Within the definition of the workstation other equipment and factors are taken into account such as: telephones, printers and the environment around the display screen such as the noise, lighting, temperature etc. The particular regulations that are relevant to an echo scanning room or Department are:

1 Assessment of workstations (Regulation 2) The employer must carry out suitable and sufficient assessment of the workstation to identify risks to the user. This is usually done on a regular basis or when there has been a significant change in the workstation such as a new user of piece of equipment. Following the assessment the employer must act to reduce the risks identified. Particular emphasis is given to eyesight, stress and upper limb disorders.

2 Eye and eyesight tests (Regulation 5) Employers must provide on request and offer at regular intervals a free professional full eyesight test (not a simple 'Keystone' vision test) but the employer is not required to provide them automatically. Users must, therefore, request the tests if they experience sore eyes or headache during scanning or reporting on a PC. If the eyesight test reveals a problem the employer must provide special and normal corrective appliances such as spectacles. If the eyesight test does not reveal a problem then the workstation standards must be checked.

3 Health and safety training (Regulation 6) Adequate health and safety training must be provided for users of echo scanners and PCs. The training should cover recognition of hazards such as screen flicker and screen glare, the importance of good posture and regular breaks and how to request an eye test and report problems with the equipment etc. The user should be encouraged to contribute to the assessment of the workstation as well.

Provision and Use of Work Equipment Regulations, 1992

Published by Unison, Unison Centre, Holborn Tower, 137 High Holborn, London WC1V 6PL

This document refers to general work environments. Work equipment must comply with requirements for suitability, maintenance, information and training. This document extracts aspects which are relevant to echocardiography

Extracts from the Provision and use of Work Equipment Regulations, 1992

Work equipment includes the echo machine and any PC used in the room and also the couch or bed and any wheelchair or aids used to get the patient in a position to be scanned (see also Appendix f). The following extracts are relevant to echocardiography:

1 Suitable work equipment (Regulation 5) Employers must ensure that all work equipment is suitable for the work it is provided to do. This is confirmed by means of a risk assessment which should cover:

- 1.1 The design and condition of the equipment e.g. could it cause strain injury or could it be modified or replaced with a better designed piece of equipment to prevent injury to staff or patients
- 1.2 The working conditions where the equipment is used e.g. is the scanner electrically safe or is the floor where the scanner is used uneven making the heavy scanner prone to toppling over. This also applies to transferring a patient from a wheelchair to a scanning couch or transferring the patient from a bed following a transoesophageal scan
- 1.3 The purpose of the equipment e.g. older fixed frame wheelchairs should not be used with an immobile patient; a lightweight deconstructable wheelchair would be needed in this situation.

2 Maintenance (Regulation 6) The work equipment must be maintained in an efficient working order and a maintenance log must be kept up to date. This may also include the power sockets to ensure a stable electrical supply and secure earth as the patient may have ECG cables attached during a scan. A calibration log of syringe drivers used in stress studies should also be kept.

3 Information and instructions (Regulation 8) All staff who use the work equipment must have available to them comprehensive and adequate health and safety information. The information should cover:

- 3.1 Conditions and method of use e.g. most echo scanners cannot be used in the presence of inflammable anesthetics
- 3.2 Foreseeable and abnormal situations e.g. emergency echo scan in cardiac arrest situations
- 3.3 What to do in if there is an accident, breakdown or emergency e.g. patient falling because wheelchair brakes were not effective.

4 Training (Regulation 9) All staff who use the equipment must have adequate health and safety training. This training should cover the health and safety risks and precautions to be taken as well as supervisors receiving risk assessment training on the work equipment.

5 Controls for starting equipment (Regulation 14) The equipment used must have one or more controls for the starting and controlling of the equipment e.g. a syringe driver used in stress echo scans.

6 Control for stopping equipment (Regulation 15) Where appropriate the equipment must have a one or more controls to stop the equipment e.g. as above.

7 Controls (Regulation 17) All controls for work equipment must be clearly visible and identifiable e.g. resuscitation equipment, syringe drivers, drip pumps etc.

8 Stability of equipment (Regulation 20) The equipment should be stabilised to prevent it falling or overturning but this will also apply to additional equipment added to the scanner such as video recorders and printers. This can also apply to portable oxygen saturation monitors for transoesophageal echocardiography as well as resuscitation equipment and syringe drivers or drip pumps used in stress echocardiography.

9 Lighting (Regulation 21) Suitable and sufficient lighting must be provided. Problems may be encountered outside the normal scanning room such as the Intensive Care Unit. In these situations the control of ambient light may be difficult if there are inadequate blinds. Additional blinds may need to be installed for subsequent scans or the use of a temporary anti glare screen may help.

10 Markings (Regulation 24) The work equipment must carry clearly visible health and safety markings. These marking may indicate machine weight, whether the machine should not to be used with inflammable anaesthetics, prudent use of transducer power levels or maximum wheelchair carry weight.

11 Warnings (Regulation 25) Work equipment must incorporate warning or warning devices as appropriate. Audible warnings are usually present on syringe drivers, drip pumps and defibrillators and staff should be made aware of them. The addition of an emergency call button is advised in an echo scanning room especially if transoesophageal and stress studies are performed there.

Manual Handling Policy

Manual Handling in the Health Services. HMSO. Second edition, 1998. St Clement's House, 2-16 Colegate, Norwich NR3 1BQ.

Manual handling includes lifting, lowering, pushing, pulling, carrying and supporting loads and also patient handling. Between 1992 and 1995 nearly 14,000 manual handling accidents were reported to the Health and Safety Executive of which over 60% involved patient handling. There should be a manual handling policy in operation in all hospitals. The hospital occupational health Department should be to perform an assessment if the cardiology or echocardiography Department does not have a manual handling assessor or trainer. The health and safety officer and or manual handling assessor keep up to date with new manual handling devices and aids as well as improved techniques and regulations. They will be able to advise on changes to the Department based on the scientific study of ergonomics as well as staff training.

1. Risk assessment

The purpose of the manual handling risk assessment is to identify and extenuate possible problems e.g. install a more suitable scanning couch or have two people push the echo scanner to the ward. A record will be made of the findings and a follow up review will be made with revisions if necessary.

The four main factors considered in the assessment are:

1.1 The task Staff should be assessed as they perform echo scans in the Department and on the ward. Pushing and maneuvering the echo scanner as well as transferring the patient must also be assessed. Factors that should be taken into consideration are:

1.1.1 Holding the load (transducer, TOE probe or patient) at a distance from the trunk,

1.1.2 Unsatisfactory body movements (e.g. twisting the trunk)

1.1.3 Poor posture (e.g. stooping or over stretching),

1.1.4 Excessive movement of the load over distance (e.g. pushing the echo scanner or transferring the patient),

1.1.5 The risk of sudden movement of the load (e.g. patient falling)

1.1.6 Prolonged physical effort including a fixed posture and insufficient rest or recovery periods.

An aching back or limb at the end of the day should not be accepted as 'part of the job'.

1.2 The load The load that staff are likely to encounter should be assessed taking into consideration its weight, whether it is bulky or unwieldy, or difficult to grasp and whether it is or is likely to become unstable. When the object is a patient they may cooperate or hinder in the transfer or may find themselves suddenly unable to continue. Staff may react by trying to prevent the patient from falling which may cause injury to both. If staff are properly trained and positioned they may be able to allow a controlled fall by letting the patient slide down their body and onto the floor but with good risk assessment this situation should not arise.

1.3 The working environment The environment in which the scans are performed should be assessed taking into account:

- 1.3.1 Prevention of good posture because of space constraints and inadequate work equipment
e.g. un-adjustable couch
- 1.3.2 Slippery surfaces and uneven floors
- 1.3.3 Extremes of temperature noise etc.
- 1.3.4 Lighting condition
- 1.3.5 Poor storage facilities.

1.4 The individual staff capabilities The principles of the manual handling operations regulations is that the job should be adapted to suit the employee who should not be subject to unrealistic physical demands. Examples of questions that should be addressed are:

- 1.4.1 Can the employee push a 200 Kg (400 lb.) echo machine to a ward across uneven surfaces
- 1.4.2 Can the employee maneuver the machine into a suitable position by the ward bed
- 1.4.3 Can the employee reach the echo videos on the shelf - should a footstool be provided in the echo scanning room / Department.
- 1.4.4 Is any member of staff at particular risk e.g. pregnancy or history of previous back problems.

2 Reducing risks

Following the assessment, action must be taken to reduce the risks identified. If at all possible the manual handling operation should be eliminated or minimized by reorganizing the task.

Understanding the risks can help in finding the solution. Some factors contributing to risk are:*

- a) Number of years spent in echocardiography
- b) Frequency of lifting
- c) Scanning with the machine on the left, the transducer in the right hand and the patient on the right.
- d) Poor job satisfaction

A solution should be sought in consultation with the manual handling assessor and the staff member. No member of staff in the echo Department should be expected to handle patients or loads where there is likelihood that they or the patient may be injured. The use of manual handling equipment may reduce the risk of injury significantly. Many suppliers loan such equipment for trial periods and provide initial training in its use. Examples of these aids are:

- a) Electrically height adjustable couches
- b) Roll boards which help transfer patients from bed to trolley
- c) Two person sling for moving patient up beds / couches
- d) Floor turntables which allow a standing patient to be swiveled from a wheelchair to a seated position on a couch
- e) Adjustable wheelchair with removable sides
- f) Slide board allowing patients to slide from a seated position in a wheelchair for example to a seated position on the couch
- g) Grab handles on wall to allow patient to pull themselves onto their side for scanning (patients generally prefer to be independent and move themselves and this should be encouraged)
- h) Electric hoists may be useful with very heavy immobile patients.

3 Training

Training of all staff (including agency staff) in manual handling techniques and use of equipment/aids must be undertaken following a baseline analysis of the needs. Information should be provided to staff enabling them to report faulty equipment and how to maintain the equipment. The training programme should include:

- a) Ergonomics looking at the tasks and the environment and encouraging staff to alter their own environment to make the work safer
- b) Spinal mechanics
- c) Mechanical handling techniques
- d) Demonstration of any mechanical equipment used in the Department.

4 Monitoring.

Following risk assessment there must be follow up monitoring to assess the effectiveness of the arrangements for reducing the risk. This must be recorded. Such monitoring should identify problems before something goes wrong and can be referred to in the event of an accident. Information about any accident is useful for determining whether the manual handling policy failed or was not applied correctly.

*Solanski M, Carr D, Martin M. Back pain among echocardiographers. Heart 1997; 78 (Suppl): 23-8

Appendix D -Transoesophageal Echocardiography

Example Transoesophageal Echocardiography Checklist

Hospital Name

Department Name

Non-invasive procedure checklist and record of procedure

Patient Name _____ Ward _____

Hospital Number _____ Consultant _____

Date _____

- | | |
|--|--------------------------------|
| 1. Patient identity band | Yes/No |
| 2. Consent form signed | Yes/No |
| 3. Drug chart | Yes/No |
| 4. Venflon in situ | Yes/No |
| 5. History of swallowing difficulties | Yes/No |
| a) Haemoptysis | Yes/No |
| b) Oesophageal surgery | Yes/No |
| 6. Previous endoscopy | Yes/No |
| If yes, any problems: | |
| 7. Diabetes/epilepsy/asthma | |
| 8. Blood sugar (if diabetic) | BM _____ |
| 9. Allergies | Yes/No |
| 10. INR if anticoagulated | _____ |
| 11. Capped teeth/crowns | Yes/No |
| 12. Dentures | present/removed/not applicable |
| 13. Nil by mouth from _____ | |
| 14. Blood pressure pre-procedure _____ | |
| 15. Oxygen saturation on air _____ | |
| 16. Escort present (if outpatient) | Yes/No |

Checklist completed by _____ (signature)