



Accreditation in Adult Stress Echocardiography (SE) Information Pack

This pack is for the use of all candidates undergoing the accreditation process and becomes effective as of

1st June 2024

This document supersedes all previous versions.

This document is a guide to completing BSE accreditation

Submission, assessment criteria and portal user guide are included



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Welcome message from the Chair of Accreditation

Dear Candidate,

Welcome to the British Society of Echocardiography (BSE). The Stress Echo Accreditation process has been set up to assist all those in stress echo training. It is designed to accommodate the requirements of multiple disciplines, including Cardiologists, Physiologists and Scientists with the ultimate aim of achieving and maintaining a high standard of clinical echocardiography for the benefit of our patients.

The accreditation process is regulated to ensure high proficiency and professional standards. We aim to enable as many members as possible to achieve accreditation. A list of accredited members is maintained on the BSE website.

Please remember that we are here to support you throughout this process. If you need any assistance or have constructive feedback to offer the accreditation committee, please don't hesitate to let us know. We are committed to your success.

Good luck with your accreditation process.

Best wishes,

Sadie Bennett

Chair, BSE Accreditation Committee



Introduction & aims

- Accreditation is a service for BSE members and is not a compulsory or regulatory certificate of competence or excellence.
- Accredited members are expected to be able to perform and report echocardiographic studies unsupervised.
- The Accreditation process consists of a written theory examination and a practical assessment. This pack provides further instructions for both.
- Accreditation is a minimum requirement and cannot be regarded as a guarantee of competence.
- Echocardiography skills can only be maintained by continued education and practical involvement in echocardiography. This is underlined by limiting accreditation to five years, after which re-accreditation must be sought. Further details surrounding re-accreditation are available on the BSE website.
- Accredited members are expected to uphold the BSE code of conduct standards. Where concerns about an accredited member's echocardiography practice arise, this should be dealt with locally in the first instance and should only be escalated to the Accreditation Chair if improvement in echocardiography practice has not been demonstrated.
- **Return to practice routes for re-accreditation** are available for previously accredited members.

Summary of process requirements

1. The candidate must be a member of the BSE and hold current BSE or EACVI Adult transthoracic echocardiography (TTE) accreditation.
2. Candidates must have a designated mentor to assist them through the accreditation process.
3. The accreditation process has two compulsory elements: a written theory examination and a practical assessment. **You must pass both elements to become an accredited member.**
4. The written theory exam comprises A multiple-choice question (MCQ) theory section and a "best answer" image reporting section.
5. The practical assessment consists of a logbook, a practical scanning assessment, and a viva assessment of five patient case studies.
6. The candidate must pass the written assessment before registering to attend the practical assessment.
7. The logbook should be collected within 24 months of the written examination.

Any queries regarding the accreditation process should be addressed to the BSE Accreditation Department; contact details and registrations are available at www.bsecho.org.

Tel: 0208 065 5794 (lines open from 09:00-17:00 Mon-Fri), mail: accreditation@bsecho.org.



Exam fees

A fee of £375 is charged for the complete accreditation process. This fee is payable upon registration for the written section of the examination and covers the practical assessment. There is a non-refundable booking fee of £50 upon registering for a secured placement at the practical assessment.

Candidates who are unsuccessful in the written section of the examination will be charged a reduced fee of £187.50 to re-sit this section. This reduced fee only applies to the second attempt if taken within 12 months of an unsuccessful first attempt.

Candidates are entitled to one re-attempt at the practical assessment. A re-attempt at the practical assessment is subject to an additional fee of £187.50.

Fee increases may occur annually.

Extensions

Extensions to the 24-month deadline may be granted. Extension request forms must be submitted **before the submission deadline**. Requests received after the case deadline may not be granted.

Less-than-full-time extensions are available for up to 24 months for candidates working less than full-time as stipulated by their contracted hours. Further information can be found on the BSE website's [extension request](#) page.

Appeals

Candidates can appeal the decision on a practical assessment result. **There is no appeals process for the written section of the examination.** Further information on applying for an appeal can be found on the [practical assessment](#) page of the BSE website.

Mentor

A mentor is an experienced echocardiographer who can successfully guide a candidate through the BSE accreditation process. If the echocardiographer is BSE accredited, this is an advantage but not essential.

The mentor should understand the accreditation process, including the training syllabus (see Appendix 1) and all relevant assessment criteria.

The mentor must assess the candidate's ability to perform an echocardiogram proficiently. Once a proficient level of ability is achieved, the mentor must complete the curriculum-based competency tool and the mentor statements. These can be accessed and completed via the online logbook portal. The curriculum-based competency tool can also be found in Appendix 2.

Candidates who cannot find a mentor should [contact us](#); we will do our best to help them find a suitable mentor.



Written Theory Examination

Appendix 1 contains the whole training syllabus for this accreditation process, and Appendix 3 includes a recommended reading list.

The written theory examination is held once a year, usually in the Autumn. It is held at various Pearson VUE centres across the UK, the Republic of Ireland, and some overseas locations. Registration dates are announced on the written assessment section of the BSE website. See Appendix 4 for registration guidance.

The written examination has two parts: an MCQ theory section and an Image reporting section. To pass the written examination overall, it is necessary to pass both parts at the same exam sitting.

If the first attempt is unsuccessful, candidates may be eligible to retake the exam at a reduced rate.

Reduced rate: This only applies to a second attempt if it is taken within 12 months of the first attempt. If the second attempt is unsuccessful, the next attempt will be charged at the full fee.

There is no bar to re-sitting the written examination any number of times.

The pass mark for the MCQ is 70%, and the pass mark for the image reporting section is 60%. Following moderation, the Accreditation Chair may decide to vary these slightly.

Accreditation is awarded once a candidate has successfully completed the practical assessment. Satisfactory performance at the written assessment alone does not allow 'partial accreditation.'

Multiple-choice section

- Consists of 20 questions that must be answered within 60 minutes.
- Questions are designed to test the knowledge of echocardiographic findings, basic cardiology and the physics of ultrasound.
- Each question comprises a brief statement followed by five questions. Candidates are required to answer 'true' or 'false' to each question. Example questions are provided in Appendix 5.
- This part of the examination will be marked +1 for correct answers and 0 for incorrect or unanswered questions (no negative marking).
- There are no 'trick' questions.
- There are no fixed number of correct answers, i.e. for each question, every answer can be false or, every answer to be true or any combination of true or false.
- **The maximum possible mark is 100.**

Image reporting section

- Consists of 15 questions centred around 15 patient case studies that must be answered within 90 minutes.
- The candidate will be presented with 15 patient case studies. Each case study will consist of relevant patient details and various echocardiographic images.
- For each case study, the candidate must answer five questions. Each question will have four possible answers; the candidate must select the best single answer. An example case study and questions are provided in Appendix 6.
- **The maximum possible mark is 15.**



Practical Assessment

The practical assessment is held up to twice a year (subject to candidate demand). Dates, locations and online registration instructions are announced on the practical assessment section of the BSE website.

The practical assessment has three parts: a 200-case logbook, a practical scanning assessment, and a viva assessment of five patient case studies.

All candidates must attend an assessment within 26 months of starting the accreditation process (i.e., within two months of their case collection deadline). A two-month grace period gives the candidate time to review, prepare, and submit the logbook and five viva cases.

- Registration for the practical assessment should **ONLY** be sought after collecting the logbook and patient case studies.
- It is the candidate's responsibility to complete online registration forms and update personal information correctly.
- If you have any concerns about the information provided, you should contact the [accreditation team](#) for guidance and support.

Logbook submission

The logbook should demonstrate the candidate's ability in meeting the competencies as shown Appendix 2. The specific case mix of the logbook is shown below.

It should consist of 200 reports personally **performed and reported** by the candidate during the specified 24-month period.

The logbook format is copies of the actual clinical report. The reports are to be uploaded and submitted via the BSE logbook portal. Please see the portal user guide in Appendix 7 .

Non-portal logbooks will not be accepted.

Please see Appendix 8 for full details of what is expected in reports and how the logbook is marked.

Duplicate reports are not acceptable.

If a candidate has problems finding enough specific cases, this should be discussed with the mentor who may arrange for the candidate to attend a nearby centre.

Competencies and mentor statements are to be completed via the BSE logbook portal.

Fully subscribed BSE members can request access to the portal before sitting the written examination by emailing accreditation@bsecho.org.

The logbook should reflect the normal case-load of a general department with the following constraints:

- At least 40 cases should demonstrate ischaemia / viability.
- At least 20 cases should demonstrate structural heart disease.
- At least 50 cases should demonstrate the use of transpulmonary contrast.
- A maximum of 140 cases may be normal.



Cases should be a mixture of exercise and pharmacological stress. Depending on the case mix in a candidate's department, there may be a predominance of experience in one type of stressor.

At least 25 studies need to demonstrate that a candidate can use another type. For example, if a candidate has trained in a department that predominantly uses Dobutamine Stress echo (DSE), a candidate can submit 175 DSEs and 25 exercise stress studies.

Please note the practical assessment will be with exercise, so if a candidate is not confident with either the treadmill or bicycle protocols, a candidate will be at a disadvantage.

We advise candidates to discuss this with their assigned mentor to fill in any training gaps. In certain conditions, it may be necessary for the candidate to attend another department to gain experience.

Other information regarding the logbook:

- **All** patient-identifiable data should be removed. This may require the manual removal of identifiable data. See [Appendix 9](#).
- **At least the final 180** cases should be reported primarily by the candidate. It is acceptable to include up to 20 reports that have been overseen by an experienced operator.
- The candidate's name must appear on the report as the performing and reporting echocardiographer/sonographer. Where local policy deviates from this, a supporting letter and current standard operating procedure from the department's echo lead stating local policy should be included. This should be submitted under the "optional supporting information" section on the BSE logbook portal.
- Final sign-off / validation of the logbook is undertaken by the department's echo lead. Please see the portal user guide in [Appendix 7](#).

Practical scanning assessment

Consists of a candidate performing an exercise stress echocardiogram on a normal volunteer.

The candidate will be asked to select their preferred stressor (supine bicycle or treadmill) prior to attending the practical assessment day. Only the BSE-recommended protocol for both apparatuses will be used (i.e. WHO 25W protocol for the supine bicycle or BRUCE protocol for the treadmill).

An assistant will be present to help with the treadmill/bicycle controls on the candidate's instructions, but the candidate will be expected to acquire all images relevant to the stress echocardiogram. The candidate is not expected to be familiar with the equipment. The Assessor will alter the equipment setting as directed by the candidate.

The study may be stopped before completion of the full protocol at the Assessor's discretion. There may be discussions around image acquisition (e.g. optimisation) during the assessment.

For full details of the practical scanning marking criteria, please see Appendix 10.



Viva case submission

Consists of a viva assessment of five separate patient case studies. See below for the required cases.

The candidate will be expected to discuss their patient cases with the Assessor. All five cases may be reviewed.

For full details of the viva case marking criteria please see Appendix 11.

A commentary about the patient background should be included (verbal or within the presentation).

For patient case studies 1-4 a baseline assessment must be present and be to a sufficient standard that demonstrates the candidates ability to appropriately rule out stress echo contra-indications as well as for the assessment of whether to use of contrast (even if not required).

For patient case study 5, a full TTE at baseline is required and should be in the presentation of this case.

The cases must represent a complete study that is of good quality. Cases should be accompanied with a printed report. The report should be complete, comprehensive and reflect the patient case study being presented.

The candidate must ensure that at least one full cardiac cycle is recorded. The cases must play automatically / continuously within a PowerPoint presentation (or equivalent). Cases that do not play appropriately may be classified as an unsuccessful attempt.

Candidates must bring and present their patient case studies on their own laptop. It is the candidate's responsibility to ensure these are anonymised and can be viewed in a manner to allow an assessment of the cases being presented.

The patient case studies should include one of each of the following:

1. A normal Dobutamine stress echo study using trans-pulmonary contrast.
2. A normal exercise stress echo study (any stressor) with or without trans-pulmonary contrast.
3. A reversible ischaemic response (any stressor).
4. A Dobutamine stress echo study showing a non-viable OR viable myocardium.
5. A stress study to evaluate structural heart disease.

Other information regarding the patient case studies:

The following images must be included in the patient case studies:

1. **Normal Dobutamine study:** Parasternal or apical long axis, parasternal short axis, A4C and A2C views. Four stages (baseline, low dose, intermediate dose and peak dose) are displayed in a quad-screen and synchronised format.
2. **Normal exercise study:** At least 4 views have to be acquired as above. If using treadmill baseline and post-peak stress stages should be included. If using cycle ergometer four stage should be included as per case 1.
3. **Reversible ischaemic response:** At least 4 views as per case 1. Four stages should be included for Dobutamine studies or baseline and post-peak for exercise studies.



4. **Non-viable or viable myocardium:** At least 4 views as per case 1. Using at least low and intermediate doses. Peak dose imaging is not required but can be done if reversible ischaemia is also being assessed.
5. **Structural heart disease:** Full baseline TTE, all relevant images as per the pathology being assessed. Using baseline, low, intermediate, peak and post peak where appropriate and relevant to the pathology.

****Patient case studies may be used in subsequent BSE written exams, educational and training sessions****



Appendix 1: Training syllabus

The following sections form the minimum suggested training syllabus for this accreditation process.

Candidates should use as a guide to prepare for the written and practical assessments of this accreditation process.

1. Underlying Principles

- a. Ischaemic cascade
- b. The difference between wall motion imaging and perfusion imaging
- c. The relationship between coronary arteries and LV segments
- d. Working knowledge of chest pain guidance form NICE (ref 1) and ESC guidelines on stable coronary disease (ref 2)
- e. Role of stress echo in the assessment of structural heart disease (ref 3)

2. Indications

- a. Diagnosis of ischaemia
- b. Functional significance of known CAD
- c. Risk stratification post-myocardial infarction
- d. Post revascularisation (thrombolysis, PTCA, CABG) prognosis
- e. Pre-op evaluation prior to non-cardiac surgery ESC/ESA guidelines (ref 4)
- f. Assessment of transplant CAD
- g. Myocardial Viability
 - i. Myocardial stunning
 - ii. Hibernating myocardium
 - iii. Myocardial scar or non-viable myocardium
 - iv. Assessment of contractile reserve in DCM
 - v. Stress Echo for Haemodynamics
 - vi. Valvular stenosis
 - vii. Valvular regurgitation
 - viii. Prosthetic valves
 - ix. Pulmonary hypertension
 - x. Hypertrophic cardiomyopathy

3. Relative or true contraindications

- i. Unstable angina
- ii. Acute MI within 48hrs
- iii. Haemodynamic instability, eg hypotension, severe hypoxia
- iv. Hypertension- BP>200/110 at baseline



- v. Serious, uncontrolled arrhythmias
- vi. Mobile LV thrombus
- vii. Symptomatic severe aortic stenosis
- viii. Decompensated heart failure
- ix. Acute myo/pericarditis
- x. AV block and asthma (Adenosine)

4. Technical Aspects

a. Types of tests (pros and cons)

- i. Treadmill
- ii. Bicycle
- iii. Pharmacological- Dobutamine/Dipyridamole/Adenosine
- iv. Adjunctive use of Atropine
- v. Role of pacing
- vi. Role of handgrip

b. Consent

- i. Verbal vs written
- ii. Patient information

c. Staffing requirements

- i. Role of the physician, nurse, physiologist
- ii. Training in TTE and stress echo
- iii. Training in ALS/ILS
- iv. Competency maintenance 100/operator/year (ref 5)

d. Protocols

- i. Protocols for exercise- both treadmill and bicycle Protocols for Dobutamine/Dipyridamole/Adenosine
- ii. Basic knowledge of the stressor pharmacokinetics
- iii. Protocols for viability
- iv. Use of beta-blockade
- v. Use of Atropine/hand grip

e. End-points

- i. Completion of protocol
- ii. Target heart rate/workload
- iii. Hypotension (BP <90)
- iv. Hypertension (BP \geq 220/120 mmHg)



- v. Sustained arrhythmia
- vi. Significant ischaemia including cavity dilation
- vii. ST elevation on ECG if monitored
- viii. Significant symptoms

f. Side effects and complications

- i. Vasovagal reactions
- ii. The occurrence of major complications (ref 6)

g. Set-up/equipment/drugs

- i. Digital echocardiography machine with offline analysis package specific for SE
- ii. Automated blood pressure machine with manual backup if needed.
- iii. Continuous ECG monitoring
- iv. Fully equipped resuscitation trolley with defibrillator
- v. Oxygen supply and suction.
- vi. Availability of trans pulmonary contrast when echo window is suboptimal
- vii. Drugs to manage severe allergic reactions and anaphylactic shock. To include – IV adrenaline 1:1000, IV chlorphenamine, IV hydrocortisone, salbutamol nebuliser – in dose and preparation to meet current Resuscitation UK guidelines
- viii. Cannulation equipment
- ix. Exercise treadmill and/or semi-supine bike with protocol options
- x. Dobutamine infusion and administration pump.
- xi. IV Atropine - up to 1.2mg.
- xii. IV beta-blockers, e.g. metoprolol
- xiii. Aminophylline

h. Image acquisition

- i. Baseline minimum dataset
- ii. Commence with apical views- Ap4c, Ap2c +/- Ap 3C
- iii. PLAX and SAX
- iv. Peak/post-peak imaging for exercise (suggested timing of post-peak images within 60 secs)
- v. 85% target vs 100% target HR
- vi. Role of recovery imaging
- vii. Imaging during symptoms

5. Interpretation

- a. Quad screen display
- b. Assessment of wall thickness vs WMAs
- c. Patterns for ischaemia, hibernation, stunning and non-viability/scar
- d. Wall motion score index



e. Nomenclature of 17 segment model

f. Inter-observer variability and reproducibility

g. Causes of false positive tests

- i. Non-ischaemic cardiomyopathy- mismatch without CAD
- ii. Septal motion abnormalities (LBBB, post-CABG)- overcome by assessing wall thickness
- iii. Basal inferior wall artefact
- iv. Hypertensive response- usually preserved wall thickness
- v. Poor image quality
- vi. Interpreter bias
- vii. Causes of false negative tests
- viii. Single vessel disease
- ix. "Mild" coronary stenosis
- x. Left circumflex artery disease
- xi. Inadequate stress
- xii. Rapid recovery
- xiii. Poor image quality
- xiv. Severe LVH

i. Accuracy

- i. Sensitivity and specificity
 1. Overall and in different coronary territories
 2. In single vs multi-vessel disease
 3. In the context of LVH and LBBB
 4. In viability assessment
- ii. Comparisons with
 1. Exercise ECG
 2. Other functional imaging modalities
- iii. Comparisons between
 1. Treadmill vs bicycle
 2. Exercise vs pharmacologic
 3. Comparison of various pharmacologic agents
 4. Contrast vs no contrast
 5. Perfusion vs WMA assessment

j. Prognostic value of a negative vs positive test

6. Contrast Echocardiography & Tissue Harmonic Imaging

a. Bubble characteristics

- i. Composition



- ii. Size
- iii. Stability
- iv. Administration (bolus vs continuous)
- v. Safety
- vi. Available agents in the UK

b. Instrumentation for Contrast Agents

- i. Mechanical Index
- ii. Fundamental vs Harmonic imaging
- iii. High (power Doppler) vs low power (Pulse inversion, power modulation) imaging
- iv. Contrast destruction/refill analysis (qualitative and quantitative)
- v. Signal to noise ratio improvement techniques (background subtraction, filtering)
- vi. Capture mode

c. Capture mode

- i. Continuous
- ii. Triggered (intermittent; gated)
- iii. Destruction/fill imaging
- iv. Sequential pulse imaging

d. Clinical Applications

- i. Endocardial border enhancement
- ii. Global and regional wall motion evaluation
- iii. Doppler signal enhancement
- iv. Myocardial perfusion

e. Contraindications and warnings for contrast (guidance is for Sonovue, which is the main agent used in the UK- please see revised Bracco guidelines from October 2014, ref 7)

- i. Contra-indicated in known hypersensitivity
- ii. Contraindicated in large right-left shunts
- iii. Contraindicated in severe pulmonary hypertension >90mmHg
- iv. Caution advised within 7 days of any cardiac decompensation
- v. "Not suitable" in ventilated patients
- vi. "Not suitable" in patients with unstable neurological disease
- vii. "Should not be administered" in pregnancy and lactation

7. Basic knowledge of new technologies applied to stress echo

- i. Real-time 3D echo
- ii. TDI and derivatives
- iii. Coronary flow reserve



The level of knowledge expected is that of a competent echocardiographer performing stress echo studies and sustaining knowledge through the BSE and other educational resources, including issues relevant to clinical scanning and practice raised in the BSE Newsletter.

The level of knowledge expected is that of a competent echocardiographer performing transthoracic studies and sustaining knowledge through the [BSE and other educational resources](#), including issues relevant to clinical scanning and practice raised in the [BSE Newsletter](#) (E-news).



Appendix 2: Curriculum-based competency tool

The following competency assessment tool should be used to ensure that all knowledge and practical experience is covered during the candidate's training period.

The competency tool is now required to be completed by the candidate's mentor via the BSE online logbook portal.

Competency	Date achieved
<p>Knowledge base</p> <p>Ischaemic cascade and the differences between wall motion and perfusion imaging.</p> <p>Differences between viability and ischaemia assessment</p> <p>Coronary arteries and LV territories</p> <p>Indications for different types of stress echo including exercise and pharmacological stress</p> <p>Assessment of structural heart disease by stress echo, eg MR, HOCM, AS</p> <p>Physics of transpulmonary contrast</p> <p>Contra-indications and cautions for stressors and contrast</p> <p>Side effects and complications</p> <p>End-points for test completion</p> <p>Treatment of complications including contrast reactions</p> <p>Treatment of arrhythmias, eg beta blocker but also as per ILS/ALS guidelines</p> <p>Knowledge of relevant guidelines, eg for chest pain or valvular heart disease testing</p> <p>Knowledge of strengths and limitations of stress echo</p> <p>Working knowledge of other functional imaging modalities as compared with stress echo</p>	
<p>Practical Competencies</p> <p>Interacts appropriately with patients and stress echo team</p> <p>Able to obtain informed consent</p> <p>Able to tease out relevant contra-indications from patient history</p>	



Recognises cautions and contra-indications from baseline study, eg thrombus, critical AS

Understands basic instrumentation

Cares for machine appropriately

Can obtain standard views at baseline and reproduce views during stress

Can carry out stress protocols according to guidelines (at least Dobutamine and bike/treadmill)

Able to use Atropine and handgrip at the appropriate time

Can optimise gain settings, sector width, depth, focus, Doppler settings or colour gain as appropriate

Can handle contrast and optimise machinery for contrast settings

Can recognise and correct for artefacts, eg lateral lung shadow, apical foreshortening, LVOT vs MR

Can use all appropriate tools for valve/LVOT/PA pressure assessments

Able to recognise signs and treat contrast allergy, vasovagal response, arrhythmias, prolonged ischaemia

Interpretation competencies

Able to recognise different responses – normal, ischaemic, biphasic etc

Able to report ischaemic burden in 16 or 17 segment models of LV

Able to recognise LV dilatation

Able to recognise artefacts, eg basal inferior wall

Able to assess contractile reserve in aortic stenosis

Able to assess the severity of valve disease, eg pseudo-severe AS



Appendix 3: Reading list

The reading list is provided by the Accreditation Committee of the British Society of Echocardiography and represents only a handful of textbooks that are available for candidates to learn from.

- ASE guidelines on performance, interpretation and application of stress echo; Pellikka et al. Journal of the American Society, September 2007.
- Contrast echocardiography: evidence-based recommendations by European Association of Echocardiography; Roxy Senior et al. European Heart Journal Cardiovascular Imaging; Volume 10: p194 – 212.
- Stress echocardiography expert consensus statement- EAE guidelines; Sicari et al; Circulation. 2010;121: p1756-1767.
- EACVI toolbox on contrast echo- Lead authors Roxy Senior and Benoy Shah.
<https://www.esccardio.org/Guidelines-&-Education/Practice-tools/EACVI-toolboxes/Contrast-Echo/Contrast-Echocardiography-Box>
- Chest pain of recent onset: Assessment and diagnosis of recent onset chest pain or discomfort of suspected cardiac origin. NICE guidelines 95. March 2010. www.nice.org.uk
- ESC guidelines on the management of stable coronary artery disease: the Task Force on the management of stable coronary artery disease of the European Society of Cardiology. Task Force Members. Eur Heart J 2013;34(38):2949-3003
- Guidelines on the management of valvular heart disease (version 2012): the Joint Task Force on the Management of Valvular Heart Disease of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS). Eur Heart J 2012;33:2451-96
- 2014 ESC/ESA Guidelines on non-cardiac surgery: cardiovascular assessment and management: The Joint Task Force on non-cardiac surgery: cardiovascular assessment and management of the European Society of Cardiology (ESC) and the European Society of Anaesthesiology (ESA). Eur Heart J. 2014 Sep 14;35(35):2383-431
- Bierig S, Ehler D, Knoll M, Waggoner A. American Society of Echocardiography minimum standards for the cardiac sonographer: a position paper. J Am Soc Echocardiogr 2006;19:471-4
- Incidence, Pathophysiology, and Treatment of Complications During Dobutamine-Atropine Stress Echocardiography, Marcel L. Geleijnse et al.; Circulation. 2010;121:1756-1767
- Bracco revised warnings for Sonovue, October 2014
www.mhra.gov.uk/home/groups/comms-ic/.../con475311.pdf
- Picano, Eugene. Stress Echocardiography, Sixth edition, Springer 2015

Protocols and the most up-to-date BSE guidelines are available under the [Education](#) tab of www.bsecho.org.

Please note that only fully subscribed BSE members are granted full access to all education and exam content.



Appendix 4: Written Examination Registration Guidance

[BSE written exams](#) are delivered in partnership with Pearson VUE testing services. Candidates can sit the exam at local centres throughout the UK, the Republic of Ireland, and some overseas areas.

➤ Pre-registration (through the BSE website)

1. Candidates must have an active BSE membership (fully paid and up to date).
2. Candidates must register their interest in taking the written exam by completing an **online pre-registration form** via the accreditation section of www.bsecho.org. The pre-registration window is open for up to four weeks.
3. Candidates' registered names should appear like their photo identification. Pearson VUE follows a strict admission policy.
4. BSE will transfer your data and requirements to Pearson VUE, who will contact all pre-registered candidates with further information on confirming placements for the exam.

Delivery methods: Candidates can take the exam in two ways: in a **Test Centre (recommended)** or online proctored exam (OnVUE), which allows them to sit the exam from home (subject to system requirement).

Please note: Candidates who take the exam from home agree to take full responsibility for any technical issues, such as device updates, popup blocking, connection errors, and internet bandwidth. Even if the system checks before the exam are successful, faults may occur during the exam. It's important to understand the potential risks of using this method.

➤ Special accommodations

Pearson VUE can provide [special accommodations](#) to candidates with official requirements, such as extra time, a reader, or medication during the examination.

All requests must be in writing and supported by documents from a healthcare professional/provider detailing the requirements and reason for the request. The BSE will approve requests at its discretion and must be submitted within the pre-registration window. To submit such requests, forward them to accreditation@bsecho.org.

➤ Registration (through Pearson VUE)

Pearson VUE will manage all registration and payments after the pre-registration stage.

Candidates in need of special accommodations should notify the BSE during pre-registration.

Cancellations made in less than seven days do not qualify for a refund. All cancellations must be processed through Pearson Vue.

➤ On the day of the exam

Instructions will be given on the day of the exam via a video tutorial at the test centre. The instructions can also be accessed through Pearson VUE's online resources before the exam. Candidates will complete the exam on a computer at the test centre.



The online exam already includes a basic calculator and a whiteboard application. The examining test centre will give candidates an erasable sheet.

If the candidate chooses to take the exam from home using online proctoring (OnVUE), **a calculator and whiteboard are built into the exam as an online app** for the candidate to use at their convenience. Therefore, **no form of stationery is permitted when taking the exam.**

Candidates are required to bring a government photo ID and another form of identification. Please ensure that the registration details match your photo ID exactly; otherwise, you will be refused entry. If denied entry, candidates should contact BSE immediately.

The test centre will not facilitate any last-minute requests for special accommodations.

➤ Results

Results are released 5-6 weeks after sitting the exam. Scores will be uploaded to BSE personal profiles. Both sections must be passed to achieve a complete pass grade.

Pass: Candidates can request login details to the portal to begin uploading logbook reports. The submission deadline will appear under 'Practical submission deadline' after the Written exam scores within the 'Participation' tab of the BSE member profile. This information is also emailed to the candidate (subject to account status).

Fail: candidates can register interest to sit in the next sitting of the exam.

- The reduced fee only applies to candidates who physically sat the exam (for the first time) and were unsuccessful; the second attempt must be taken at the next sitting (within 12 months).
- Results cannot be appealed or 'remarked' as the tests are computer-based.

Please watch the demo available via Pearson VUE: <http://www.pearsonvue.com/demo/>

➤ Additional Information

Candidates are advised to check the security procedures in the "What to expect section" of the Pearson VUE/BSE guide page: <https://home.pearsonvue.com/Test-takers/Resources.aspx>.

Pearson VUE has a strict admissions policy. Candidates' registered names should be exactly as they appear on their government photographic ID.



Appendix 5: Written exam multiple-choice questions example

Answer 'True' (T) or 'False' (F) to each of the following.

There is no negative marking - one mark added for a correct answer, no mark deducted for an incorrect answer.

Q1	The following are all acceptable indications for stress echocardiography:	
a)	Assessment of the functional significance of a 60% lesion on CT angiography	T
b)	Determination of viability following inferior myocardial infarction with known right coronary occlusion	T
c)	Diagnosis of crescendo angina in a 67 year old male with a typical history and pre-test probability of 93%	F
d)	Determination of prognosis following anterior myocardial infarction	T
e)	Risk stratification prior to abdominal aortic aneurysm repair in a patient unable to exercise due to claudication	T

Q2	The following are considered contra-indications for stress echocardiography:	
a)	Presence of an LV thrombus	T
b)	Presence of symptomatic aortic stenosis	T
c)	Previous myocardial infarction >7 days ago	F
d)	Presence of atrial fibrillation	F
e)	Pacemaker insitu with intrinsic rhythm	F

Q3	Regarding safety precautions for DSE studies:	
a)	Patients with glaucoma are indicated to have atropine	F
b)	Patients with a resting BP of 250/150mmHg are safe to continue with the DSE	F
c)	Only one member of staff is required to be present to undertake a DSE	F
d)	Medications for severe allergic reactions include 1:1000 IV/IM adrenaline and chlorphenamine	T
e)	A baseline echocardiography should be undertaken to exclude contra-indications prior to a DSE	T

Q4	Which of the following are absolute end points for stress echo studies:	
a)	New wall motion abnormality	T
b)	Progressive LV dilatation	T
c)	Drop in systolic BP >10mmHg from baseline without evidence of ischaemia	F
d)	ST elevation >1mm with symptoms	T
e)	Drop in systolic BP >10mmHg from baseline without symptoms	F



Appendix 6: Written exam image reporting questions example

A number of moving clips and stills will be included in each question. Although these can be viewed and replayed as many times as the candidate wishes, the candidate should be mindful of the time spent on each question.

The **SINGLE BEST ANSWER** should be selected.

There is no negative marking - one mark added for a correct answer, no mark deducted for an incorrect answer.

Case 1

Request: male, 57 year old, exertional chest pain, type II DM, high cholesterol. ? inducible ischaemia.

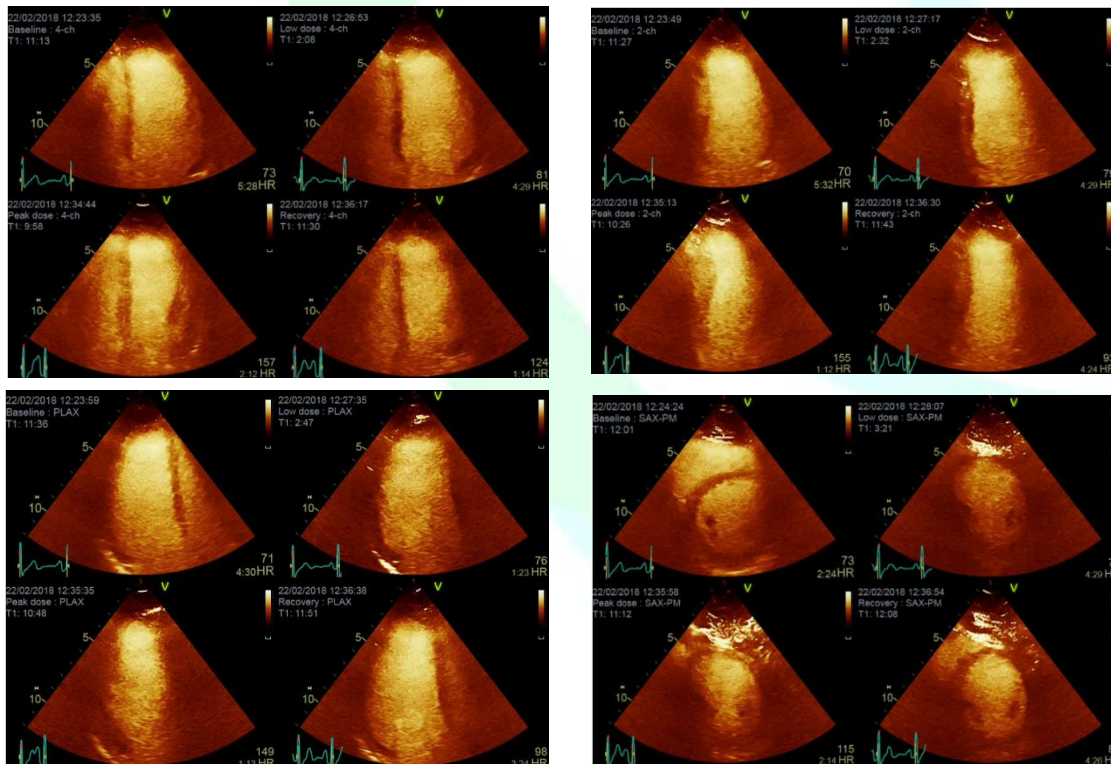
Data: LVEDV baseline: 66ml, peak stress: 50ml.

Baseline BP: 148/83mmHg. HR: 72bpm.

10mcg/min/kg: BP: 178/89mmHg, HR: 78bpm

20mcg/min/kg: BP: 154/84mmHg, HR: 144bpm

30mcg/min/kg: BP: 160/90mmHg, HR: 158bpm



1.1	Regarding the stress echo findings:	Answer
a	Evidence of inducible ischaemia – likely LAD territory	T
b	Evidence of non-viable myocardium – likely LAD territory	
c	Evidence of inducible ischaemic – likely LCX territory	
d	Evidence of non-viable myocardium – likely LCX territory	



Appendix 7: BSE logbook portal user guidance

1. User Login Details:

- Request login details by emailing the accreditation team- accreditation@bsecho.org.
- Provide your BSE ID number, the type of *accreditation you are pursuing.
- Also, inform us of your mentor's name and email address- we will assign them to your logbook.
- An automated message from the portal will be emailed to you with your login details.
- Link to the portal: <https://logbook-v2.bsecho.org/login>

British Society of Echocardiography

Username or Email
accreditation@bsecho.org

Password
.....

Remember me

[Forgot your password?](#) **Login**

- a. If you have forgotten your password, please click the link titled [Forgot your password?](#)

British Society of Echocardiography

Forgot your password? No problem. Just let us know your email address and we will email you a password reset link that will allow you to choose a new one.

Email
[Input Field]

Email Password Reset Link



2. Update your profile

- Click on your name, then 'Profile' to update your name, email and password.

The screenshot shows the user interface for updating a profile. At the top right, the user's name 'Jo Vashishta' is displayed with a dropdown arrow. The dropdown menu is open, showing three options: 'Manage Account', 'Profile' (which is circled in red), and 'Logout'. Below the navigation bar, the 'Profile' section is active. It contains a 'Profile Information' sub-section with the instruction 'Update your account's profile information and email address.' The form fields are: Membership Number (BSE Staff), Username (thanjjo), First Name (Jo), Surname (Vashishta), and Email (jo@bsecho.org). A 'Save' button is located at the bottom right of the form.

Enter new password and click 'save.'

The screenshot shows two sections of the user interface. The top section is 'Update Password', with the instruction 'Ensure your account is using a long, random password to stay secure.' It contains three password input fields: 'Current Password', 'New Password', and 'Confirm Password'. A 'Save' button is at the bottom right. The bottom section is 'Browser Sessions', with the instruction 'Manage and logout your active sessions on other browsers and devices.' It contains a warning message: 'If necessary, you may logout of all of your other browser sessions across all of your devices. Some of your recent sessions are listed below; however, this list may not be exhaustive. If you feel your account has been compromised, you should also update your password.' Below the warning, there is a list of sessions: 'Windows - Chrome' on 'this device'. A 'Logout Other Browser Sessions' button is at the bottom.



3. User dashboard (e.g. Candidate, Mentor or Assessor)

Click on the visible heading to access your dashboard

Candidate Dashboard

ACCREDITATION	WRITTEN EXAM DATE	LOGBOOK	COMPETENCIES	MENTOR STATEMENTS	STATUS
TTE Test version for upgrade	× No date set	0 of 1 0%	0 of 3 0%	0 of 7 0%	In Progress >

a. Enter Written Exam Date

Click on [× No date set](#) to bring up the calendar and select the date you sat the written exam.

Level 1 candidates should add the date they started the accreditation.

TTE Test version for upgrade

Written Exam Date

dd/mm/yyyy

Close Save

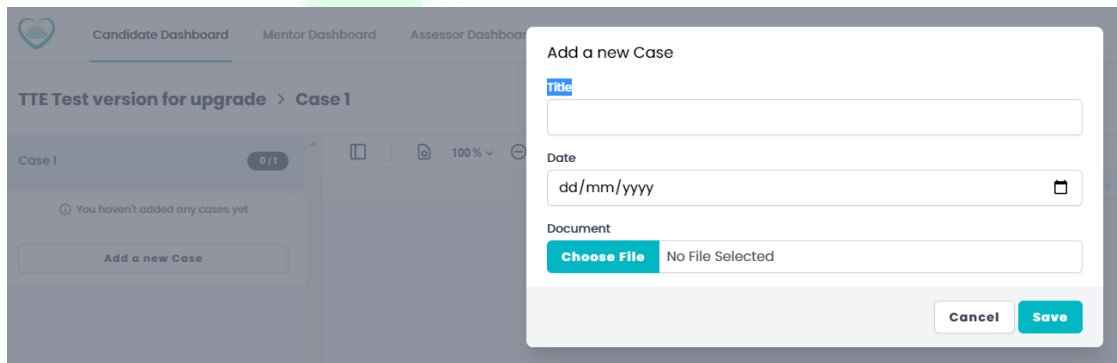
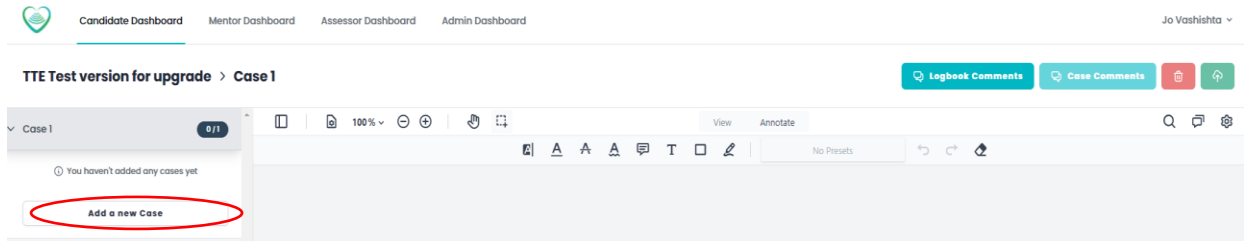
b. Click the box under the Logbook title to begin uploading PDF reports. The portal will take only PDF uploads.



Candidate Dashboard

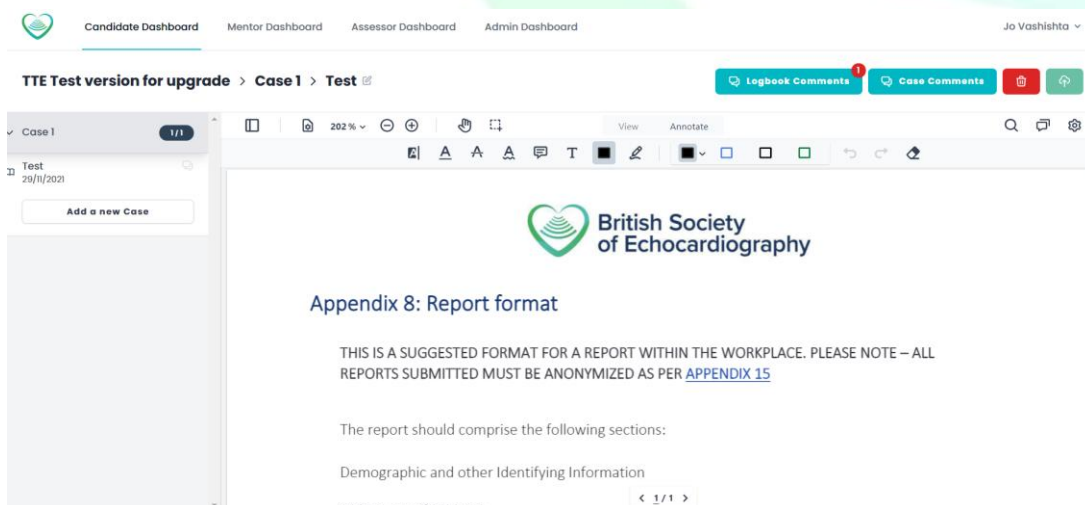
ACCREDITATION	WRITTEN EXAM DATE	LOGBOOK
TTE Test version for upgrade	10/11/2021	0 of 1 0%



To add a new case, click on 'Add a new Case', give it a Title, enter the date of the case and Choose File.

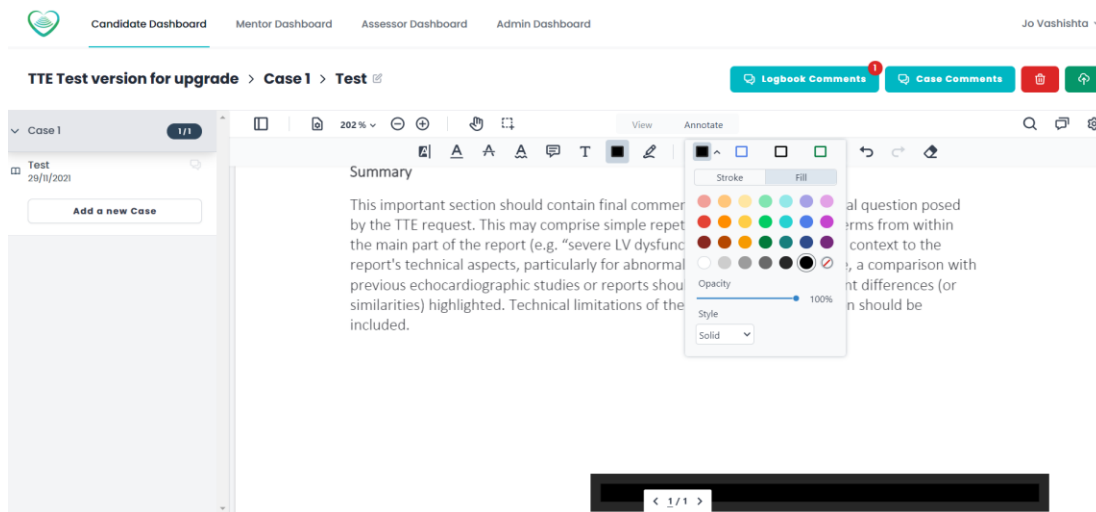


- Explore the features and tools by hovering over the icons to find what they can do.
- To **save** your work, click , to **delete** click 

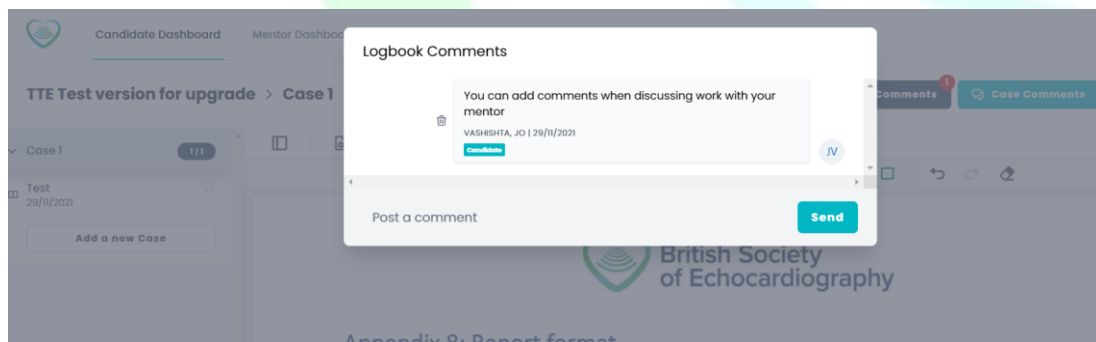




The 'Rectangle' tool allows masking over unwanted data. Click the Save button to keep the anonymised changes.



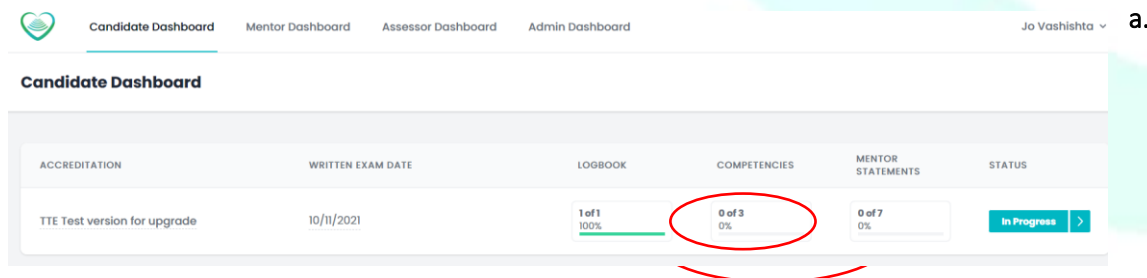
You can add a logbook or case comments to share with your mentor.



4. Competencies

Your mentor will access your portal via their login and sign off on each of the competencies.

Candidates can view their progress on the dashboard.



Mentor view:



The mentor clicks the sections below the ' DATE SIGNED OFF' header to sign off competencies by clicking on 'Sign off.'

TTE Test version for upgrade - Vashishta, Jo

COMPETENCY	SIGNED OFF BY	DATE SIGNED OFF
Received correctly		
1a. Basic Echocardiography - Knowledge		
a. Basic principles of ultrasound		Sign Off ✓
b. Basic principles of spectral Doppler	V Vashishta, Jo	29/11/2021 ✕
c. Basic principles of colour flow Doppler	V Vashishta, Jo	29/11/2021 ✕

When the mentor has completed the competency sign-off, they must do the same for the 'Mentor statement.'

1. I certify that the candidate has undergone a programme of training in echocardiography.	V Vashishta, Jo	29/11/2021 ✕
2. I certify I have observed the candidate scanning and I am satisfied that he/she is competent at completing a full transthoracic echo study.	V Vashishta, Jo	29/11/2021 ✕
3. I certify that the candidate has reached a standard of training to be able to independently perform and report a transthoracic echocardiographic study. He/she has reached all of the mandated competencies. I have signed off the candidate's competency sheet.	V Vashishta, Jo	29/11/2021 ✕
4. I certify that the candidate above has performed and reported the cases included in the accompanying Log Book within a 24-month period (or the timeframe as agreed by the BSE).	V Vashishta, Jo	29/11/2021 ✕
5. I certify that this is a demonstration of the logbook portal for testing purposes only and does not constitute BSE TTE accreditation and that this is understood by myself and the candidate.		Sign Off ✓

5. Candidate logbook submission

Candidates can check the progress of their logbooks in the dashboard by clicking the arrow after 'In Progress'.

Candidate Dashboard

ACCREDITATION	WRITTEN EXAM DATE	LOGBOOK	COMPETENCIES	MENTOR STATEMENTS	STATUS
TTE Test version for upgrade	10/11/2021	1 of 1 100%	3 of 3 100%	7 of 7 100%	In Progress >



a. Verify and submit

Check you have completed the requirement before clicking 'Continue.'

The screenshot shows a 'Candidate Dashboard' with a modal window titled 'Verify & Submit TTE Test version for upgrade'. The modal contains four checklist items, all marked with green checkmarks: 'Have the correct number of cases been added to your logbook?', 'Did your written exam fall within the correct timeframe of your earliest uploaded case?', 'Are your accreditation competencies complete?', and 'Are your mentor statements complete?'. At the bottom of the modal, there are 'Close' and 'Continue' buttons. The 'Continue' button is circled in red. In the background, the dashboard shows 'TTE Test version for upgrade' with a progress bar at 100% and a status of 'In Progress'.

b. Enter the Head of Department Email Address and click submit:

The screenshot shows the same 'Candidate Dashboard' with the 'Verify & Submit TTE Test version for upgrade' modal. The modal text now reads: 'Your logbook has been verified and is ready for submission. Please provide your Head of Department email address to continue.' Below this text is a text input field labeled 'Head of Department Email Address' containing a yellowed-out email address. At the bottom of the modal, there are 'Close' and 'Submit' buttons. The 'Submit' button is circled in red. The background dashboard shows the same progress and status as the previous screenshot.

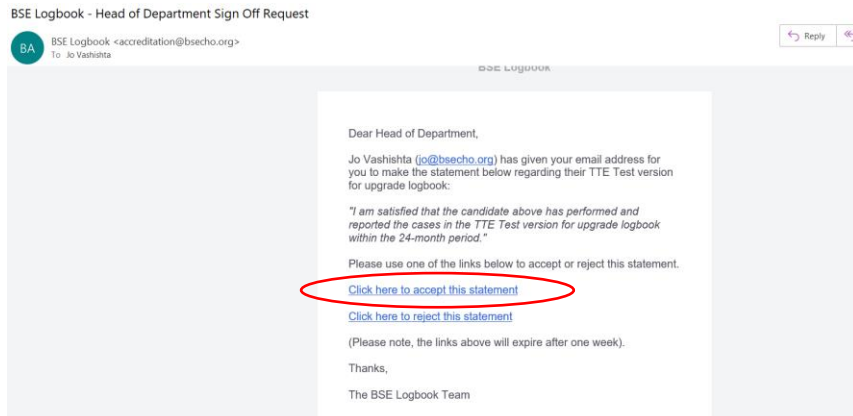
- Contact accreditation@bsecho.org to inform you that you have entered your HOD's email address and clicked submit.
- We will send the email to your HOD so that they can validate your logbook. Please ask your HOD to check their junk mail if the email is not visible.

Candidate Dashboard

ACCREDITATION	WRITTEN EXAM DATE	LOGBOOK	COMPETENCIES	MENTOR STATEMENTS	STATUS
TTE Test version for upgrade	10/11/2021	1 of 1 100%	3 of 3 100%	7 of 7 100%	Validating Head of Department



6. Validate logbook: Your Head of Department must click the link to accept the statement.



a. Head of Department validated: After clicking the statement, the Head of Department receives the message below.



Some NHS emails may block messages from the logbook portal- accreditation@bsecho.org. In this case, candidates should consider providing an alternative email address, e.g. non-NHS email addresses.

7. Logbook submitted: Once the logbook has been validated, it is ready for an assessor to mark.

Candidate Dashboard

ACCREDITATION	WRITTEN EXAM DATE	LOGBOOK	COMPETENCIES	MENTOR STATEMENTS	STATUS
TTE Test version for upgrade	10/11/2021	1 of 1 100%	3 of 3 100%	7 of 7 100%	Submitted

- No further action is required from this point.
- Candidates will be notified when marking is complete.



Appendix 8: Logbook guidance and marking criteria

A comprehensive report should include:

1. The indication for the study
2. Details of stress technique used including the haemodynamic parameters during the test
3. Use of contrast
4. Symptoms occurring during the test, eg whether the patient had their typical symptoms during stress
5. Assessment of the 12 lead ECG findings if used.
6. Image quality: good/moderate/poor
7. LV size and function at rest and peak
8. Wall motion assessment/scoring at each stage
9. Interpretation and diagnosis including a conclusion regarding the risk stratification



Appendix 9: Guidance for the removal of patient identifiable data

The duty of confidentiality arises from the common law of confidentiality, professional obligations and staff employment contracts. Breach of confidence may lead to disciplinary measures, question professional reputation and possibly result in legal proceedings.

Guidance is provided to Healthcare Professionals in the 'NHS Code of Practice on Confidentiality' (November 2003):

http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4069254.pdf

Patient information that can identify individual patients is confidential and must not be used or disclosed in any part of the submission required for this accreditation process. In contrast, anonymised information is not confidential and may be used.

Key identifiable information includes:

- a. Patient's name
- b. Address
- c. Full post code
- d. Date of birth
- e. NHS number and local identifiable codes

Key identifiable information may also include information that can be used to identify a patient directly or indirectly. For example, rare diseases, drug treatment, or statistical analyses involving very small numbers within a small population may allow individuals to be identified.

Guidance to candidates submitting Logbooks and Cases for Accreditation

The NHS Code of Practice on confidentiality means that evidence submitted for this accreditation process must have removed **ALL** patient identifiable information beyond gender and age/year of birth.

Reports – Please use the BSE [online portal](#) and electronically delete all patient information except age and gender.

We advocate against using other electronic anonymisation methods as sometimes data is still present. If in doubt, manually remove patient identification information before use.

Video cases—We appreciate that removing patient IDs may be difficult. Therefore, it is advised that the video cases are specifically collected and the data inputs made relevant to your cases (E.g., the Patient Name could be 'BSE Case 1', and the Patient Number could be your membership number followed by the case number, '1111-1').

The final decision remains at the discretion of the Chair of the Accreditation Committee.



Appendix 10: Practical scanning assessment:

The marking criteria used for the practical scanning assessment can be seen below.

The candidate will be asked prior to the assessment which stressor they wish to undertake the assessment on (treadmill or supine bicycle).

A volunteer will role-play as a patient having an exercise stress echo for ischaemia testing.

The candidate should interact with the volunteer as they would be with a patient attending their stress echo list within their own department.

Performance Competency	Criteria	F	BF	BP	P	Weighting	Guidance	Max Score
Checks patient identity	Checks patient identity using 3 unique identifiers	0	1	2	3	3	P if 3 unique identifiers are checked. BP if 2 unique identifiers are checked. BF if 1 unique identifier is checked. F if no checks are made.	
Baseline Requirements	Pays attention to detail and is able to record baseline parameters including assessment of AV at rest	0	1	2	3	5	P if high quality optimised image. BP if clinically satisfactory image with limited optimisation. BF if unable to accurately acquire image although is able to identify remedial measures. F if unable to reproduce image which reflects the PLAX in the specific model.	
Contrast Requirement and Associated risks of using contrast	Pays attention to detail and is able to recognise good images.	0	1	2	3	5	P if clear communication of this is demonstrated. BP if able to identify if contrast required or not although limited knowledge of potential issues with contrast and why the decision has been made. BF if able to identify if contrast is required and demonstrates many short fallings in knowledge of why contrast could/should. F if unable to identify why contrast could be used and is not able to outline the potential risks of contrast.	



Leads the stress protocol	Is able to inform patient and demonstrate knowledge of stress protocols	0	1	2	3	5	P if appears competent and knowledgeable about stress protocols, BP if lacking some knowledge but appears competent, BF if lacking a lot of knowledge but still safe to perform a stress study, F if deemed unsafe.	
Acquisition of baseline Apical Images	Pays attention to detail and is able to recognise/acquire a good image	0	1	2	3	3	P if high quality optimised image. BP if clinically satisfactory image with limited optimisation. BF if unable to accurately acquire image although is able to identify remedial measures. F if unable to reproduce image which reflects the Assessor's image acquisition in the model.	



Appendix 11: Patient case studies viva marking criteria

The next few pages show the individual marking criteria for each of the patient video case studies.

All criteria must be met to a satisfactory standard in order for the patient case study to be passed.

A minimum of two patient case studies will be assessed. The British Society of Echocardiography reserves the right to assess all five patient viva cases.

Video case 1. Normal Dobutamine stress echo using trans-pulmonary contrast

Competency		Satisfactory	Unsatisfactory	Comments
1	ECG			
2	Pre-stress safety checks, eg severe aortic stenosis			
3	Contrast optimisation			
4	Baseline- All views present			
5	Low- all views present			
6	Intermediate- all views present			
7	Peak- all views present			
8	Recovery (optional) views			
9	Synchronised Quad-screen display			
10	Report - accurate			

Adult Stress Echo Accreditation – Normal Dobutamine stress echo using trans-pulmonary contrast			
Practice must be satisfactory in all areas to pass			
Evidence of satisfactory practice	Tick	Evidence of unsatisfactory practice	Tick
ECG Present throughout with good synchronisation		ECG Unstable or absent	
Optimisation Demonstrates good endocardial border definition with MI, gain, TGC controls		Optimisation Frequent, repetitive optimisation errors which detract from the case conclusion	
Complete study Images are complete enough to allow for a complete assessment		Incomplete study Images are missing which are relevant to the assessment	
Report is complete and accurate 1. Comprehensive and accurate description of all LV segments 2. Correct interpretation of findings in the clinical context		Report is incomplete or inaccurate 1. Partial and inaccurate description of all LV segments 2. Incorrect interpretation of findings in the clinical context	



Video case 2. Normal exercise stress echo study

Competency		Satisfactory	Unsatisfactory	Comments
1	ECG			
2	Pre-stress safety checks, eg severe aortic stenosis			
3	Contrast optimisation (optional)			
4	Baseline- All views present			
5	Low- all views present (optional)			
6	Intermediate all views present (optional)			
7	Peak/post-peak- all views present			
8	Recovery views (optional)			
9	Synchronised multi-screen display			
10	Report - accurate			

Adult Stress Echo Accreditation – Normal exercise stress echo study with or without trans-pulmonary contrast			
Practice must be satisfactory in all areas to pass			
Evidence of satisfactory practice	Tick	Evidence of unsatisfactory practice	Tick
ECG Present throughout with good synchronisation		ECG Unstable or absent	
Optimisation Demonstrates good endocardial border definition with MI, gain, TGC controls		Optimisation Frequent, repetitive optimisation errors which detract from the case conclusion	
Complete study Images are complete enough to allow for a complete assessment		Incomplete study Images are missing which are relevant to the assessment	
Report is complete and accurate 1.Comprehensive and accurate description of all LV segments 2. Correct interpretation of findings in the clinical context		Report is incomplete or inaccurate 1.Partial and inaccurate description of all LV segments 2.Incorrect interpretation of findings in the clinical context	



Video case 3. Ischaemic stress echo study

Competency		Satisfactory	Unsatisfactory	Comments
1	ECG			
2	Pre-stress safety checks, eg severe aortic stenosis			
3	Contrast optimisation (optional)			
4	Baseline- All views present			
5	Low- all views present (optional)			
6	Intermediate (optional) all views present			
7	Peak/post-peak- all views present			
8	Recovery (optional) views			
9	Synchronised multi-screen display			
10	Report - accurate			

Adult Stress Echo Accreditation – Ischaemic stress echo study with or without trans-pulmonary contrast			
Practice must be satisfactory in all areas to pass			
Evidence of satisfactory practice	Tick	Evidence of unsatisfactory practice	Tick
ECG Present throughout with good synchronisation		ECG Unstable or absent	
Optimisation Demonstrates good endocardial border definition with MI, gain, TGC controls		Optimisation Frequent, repetitive optimisation errors which detract from the case conclusion	
Complete study Images are complete enough to allow assessment of ischaemia		Incomplete study Images are missing which are relevant to the assessment of ischaemia	
Report is complete and accurate 1.Comprehensive and accurate description of all LV segments 2.Correct segmental analysis 3.Correct correlation to coronary circulation		Report is incomplete or inaccurate 1.Partial and inaccurate description of all LV segments 2.Incorrect segmental analysis 3.Incorrect correlation to coronary circulation	



Video case 4. Viable or non-viable myocardium stress echo study

Competency		Satisfactory	Unsatisfactory	Comments
1	ECG			
2	Pre-stress safety checks eg severe aortic stenosis			
3	Contrast optimisation (optional)			
4	Baseline- All views present			
5	Low- all views present			
6	Intermediate- all views present			
7	Peak (if hybrid study) - all views present			
8	Recovery (optional) views			
9	Synchronised multi-screen display			
10	Report - accurate			

Adult Stress Echo Accreditation – Ischaemic stress echo study with or without trans-pulmonary contrast			
Practice must be satisfactory in all areas to pass			
Evidence of satisfactory practice	Tick	Evidence of unsatisfactory practice	Tick
ECG Present throughout with good synchronisation		ECG Unstable or absent	
Optimisation Demonstrates good endocardial border definition with MI, gain, TGC controls		Optimisation Frequent, repetitive optimisation errors which detract from the case conclusion	
Complete study Images are complete enough to allow a complete assessment		Incomplete study Images are missing which are relevant to the assessment	
Report is complete and accurate 1.Comprehensive and accurate description of all LV segments 2. Correct segmental analysis 3. Correct correlation to coronary circulation		Report is incomplete or inaccurate 1. Partial and inaccurate description of all LV segments 2. Incorrect segmental analysis 3. Incorrect correlation to coronary circulation	



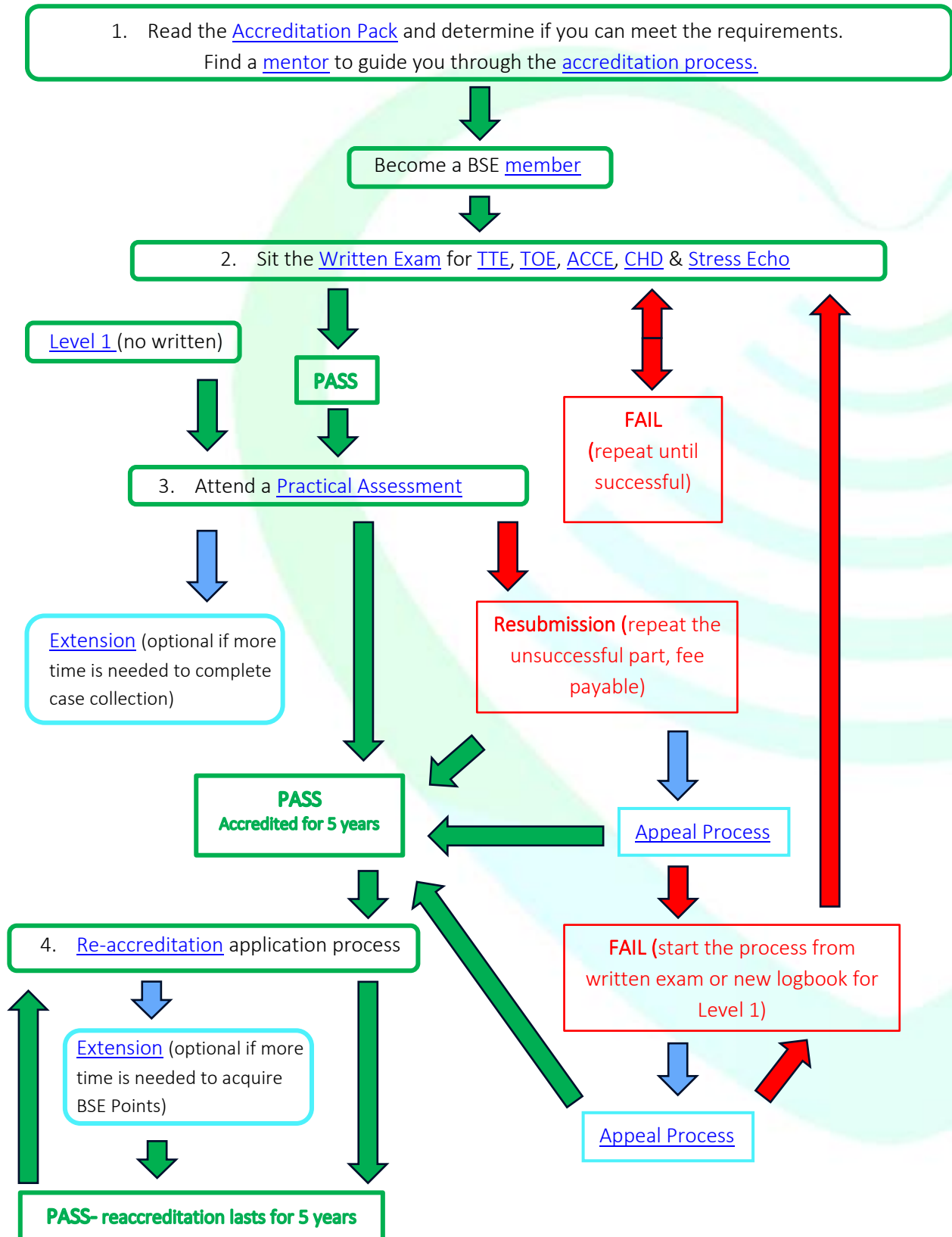
Video case 5. Structural heart disease stress echo study

Competency		Satisfactory	Unsatisfactory	Comments
1	ECG			
2	Pre-stress study to show all TTE images relevant to pathology			
3	Image optimisation			
4	Baseline- All views present			
5	Low- all views present (if relevant to pathology)			
6	Intermediate- all views present (if relevant to pathology)			
7	Peak - all views present (if relevant to pathology)			
8	Recovery views (if relevant to pathology)			
9	Synchronised multi-screen display			
10	Report - accurate			

Adult Stress Echo Accreditation – Ischaemic stress echo study with or without trans-pulmonary contrast			
Practice must be satisfactory in all areas to pass			
Evidence of satisfactory practice	Tick	Evidence of unsatisfactory practice	Tick
ECG Present throughout with good synchronisation		ECG Unstable or absent	
Optimisation Demonstrates otpimisation of relevant pathology		Optimisation Frequent, repetitive optimisation errors which detract from the case conclusion	
Complete study Images are complete enough to allow assessment of pathology		Incomplete study Images are missing which are relevant to the assessment	
Report is complete and accurate 1.Comprehensive and accurate description of the chosen pathology 2. Correct interpretation of findings in the clinical context		Report is incomplete or inaccurate 1.Partial and inaccurate description of the chosen pathology 2. Incorrect interpretation of findings in the clinical context	



Accreditation Process Overview





Useful Links & Contacts

Some pages are restricted to BSE paid members only and require login before accessing.

- Accreditation process- <https://www.bsecho.org/Public/Public/Accreditation/Personal-accred/Process.aspx>
- Education resources (protocols & guidelines)- <https://www.bsecho.org/Public/Public/Education/Protocols-and-guidelines.aspx>
- Extension requests- <https://www.bsecho.org/Public/Public/Accreditation/Personal-accred/Extension-requests.aspx>
- Logbook portal- <https://logbook.bsecho.org/>
- Pearson VUE Testing- <https://home.pearsOnVUE.com/bse>
- Practical assessments- <https://www.bsecho.org/Public/Public/Accreditation/Personal-accred/Practical-assessment.aspx>
- Re-accreditation- <https://www.bsecho.org/Public/Public/Accreditation/Personal-accred/Re-accreditation.aspx>
- Regional representatives map- <https://www.bsecho.org/Public/About-Us/Governance/Council-committees/Regional-representatives.aspx>
- Written examination dates- <https://www.bsecho.org/Public/Public/Accreditation/Personal-accred/Written-examination.aspx>

Join the Accreditation Clinics on the first Thursday of the month at 1 pm to ask your questions about accreditation. The Clinics are hosted by the Accreditation team with the support of a committee member involved in the assessment process.

Sign up for a clinic- https://www.bsecho.org/Public/Public/Events/Events_List.aspx

Contacts

- All accreditation queries (including exam registrations) and requests to access the portal should be made to accreditation@bsecho.org
- Membership questions should be sent to membership@bsecho.org
- Events, education and e-learning questions should be sent to events@bsecho.org
- Concerns or complaints should be directed to admin@bsecho.org
- Phone number for all areas: 0208 065 5794 (Mon-Fri 9 am-5 pm)