

Standard Operating Procedure for BSE Adult TTE Practical Scanning Station	
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Purpose of this document:

To produce a coordinated approach to running this station, considering the well-being of the candidate, safe-guarding the facilities and equipment of the host department and ensuring a robust and accountable assessment process.

Scope of this SOP:

Applies to all BSE assessors examining on this station. This station is designed to assess the candidate's scanning ability – **NB: the candidate is not expected to create the "perfect" study – please allow for nerves.**

Assessor Information:

- There are four different image acquisition lists (see Appendix 2), the list to be used will be decided on the assessment day - all four lists will be available to the candidates in advance so they know what may be expected of them.
- In order to ensure that there is no clash with actual patient details in the host hospital archive system, ensure that the echo machine is unplugged from the network before the session begins.
- Patient details should be entered as follows:

Surname	"Room A, B, etc." as per door sign
Forename	Candidate Number
Patient ID	"Model A, B, etc." as per door sign
Date of Birth	Use Model's DOB

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- Before the candidates arrive, each assessor must scan their model to acquire a set of baseline images and ensure that the selected image list is achievable on each model.
- **NB: if you discover any (undiagnosed) pathology on your model, e.g. bicuspid AV, PDA, MV prolapse, etc. please alert the Chief Examiner. A full study will need to be performed at the end of the exam session and the report sent on to the model's GP (Appendix 1).**
- Guide the candidate through each of the images they need to acquire.
- Image acquisition should take no more than 20 minutes (10 images X 2mins each), encourage the candidate to move on if necessary.
- Assessors can assist candidates with echo system manipulation if they are unsure of the equipment.
- If there are concerns with any of the images, question the candidate, if they can demonstrate appropriate knowledge/competence this may be sufficient to pass.
- Candidates no longer need to acquire all images to pass, a trigger score of 66% (83 points) will be used. Once the trigger score is reached the candidate can proceed to the next station.
- Complete the paperwork (see Appendix 3) as per the mark scheme (see Appendix 4) for successful candidates, giving constructive feedback.
- Unsuccessful candidates should be informed by the assessor after a discussion with the station lead. Constructive feedback should be given and may include a comparison of the images acquired by the candidate against the assessor's images.
- Throughout the session ensure the welfare of the model, appropriate comfort breaks and opportunity for refreshments.
- At the end of the session ensure that all baseline & candidate images are burned to disk and deleted from the echo machine.
- Shut down the echo machine and leave the room clean, tidy and set up as it was on arrival.

Station Lead Duties:

- Ensure that all machines and rooms are set up appropriately - in particular, disconnect each network cable from the machine and allocate the left-handed room, if appropriate.
- Select an image acquisition list for the day.
- Allocate each assessor to a room and an echo machine they are comfortable using.
- Collect the models and ensure they have read and signed the model disclaimer forms (Appendix 4).
- Introduce each assessor to their model and ensure baseline images are acquired in a timely fashion.
- Ensure each of the required images is obtainable on each of the models – if there is a significant limitation on any model, consider selecting a different list for the session.
- If the list is amended, ensure this is communicated to all assessors in order that there is a full set of baseline images for each model as per the new list.
- Co-ordinate the flow of candidates through the station – taking care to ensure that candidates progress through a room which is set up in the way which they scan.
- Be available to discuss potential unsuccessful candidates with the assessor and assist with the delivery of feedback if necessary.
- Ensure that unsuccessful candidates are dealt with in a considerate and supportive manner.
- Ensure the welfare of the assessors, appropriate comfort breaks and opportunity for refreshments.
- At the end of the session collect a disk of the assessments from each assessor and ensure that the models are given their “thank you” voucher.
- Ensure all signage is removed, all echo machines shut down and all rooms returned to the state in which they were found.
- Thank the models and assessors.

Appendix One - Ultrasound Models and Volunteer Guidelines

BSE occasionally requires the services of models for ultrasound scanning during teaching, assessments and demonstrations at conferences/study days.

- Such models (volunteers, colleagues or Agency models) must have the process/requirements explained to them by a BSE member and a consent/disclaimer form must be signed and dated by both parties.
- Models must understand the purpose and limitations of the scan – not performing a complete clinical evaluation or producing a documented report.
- During the scan, if there is any cause for concern or incidental finding then the model will be referred back to GP/Clinician for further evaluation.
- Scanning will be performed or supervised by suitably qualified or experienced sonographers/medical personnel.
- Ultrasound equipment is fit for purpose and regularly serviced and maintained. Appropriate systems, software and transducers will be used.
- Appropriate care of model - comfort, dignity, explanation, introductions etc. is essential throughout the scan

Models may be scanned at rest and/or performing exercise (on a stationary bike or a treadmill)

GI and CV models

- Low risk
- Low BMI (less associated health problems)
- Make us aware of existing medical conditions or pathologies

Additional information on best practise, best clinical care, implications/limitations and standards of working practise can be found and researched at the following associations and organisations

BSE
NICE
UKAS
SCOR

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BMUS

WJG 03/19

Appendix Two

Image List One

2 minutes per acquisition Encourage candidates to move on if necessary	Image (Score Weighting)
1	2D Parasternal Long Axis (5)
2	2D Parasternal Short Axis Left Ventricle (5)
3	2D modified Short Axis demonstrating Main Pulmonary Artery (3)
4	PW Doppler RVOT (1)
5	2D Apical 4 Chamber (5)
6	PW Doppler Mitral Valve (1)
7	2D Apical 2 Chamber (5)
8	2D A4C modified to show RV, with Colour Doppler, demonstrating TR if present (3)
9	2D Subcostal 4 Chamber (3)
10	Blind CW Doppler Descending Aorta (3)
	Modification of Patient Position to Optimise Image Quality (5)
	Image Optimisation (3)

Image List Two

2 minutes per acquisition Encourage candidates to move on if necessary	Image (Score Weighting)
1	2D Parasternal Long Axis (5)
2	2D Parasternal Long Axis tilt for Tricuspid Valve with Colour Doppler (3)
3	2D Parasternal Short Axis at Mitral Valve (5)
4	Parasternal Short Axis with Colour Doppler on Interatrial Septum (2)
5	2D Apical 5 Chamber (5)
6	PW Doppler Mitral Valve (1)
7	Septal TDI (2)
8	2D Apical 2 Chamber optimised for LV (5)
9	2D Subcostal IVC with sniff (1)
10	Blind CW Doppler Ascending Aorta (3)
	Modification of Patient Position to Optimise Image Quality (5)
	Image Optimisation (3)

Image List Three

2 minutes per acquisition Encourage candidates to move on if necessary	Image (Score Weighting)
1	2D Parasternal Long Axis with Colour Doppler on Aortic Valve (5)
2	M-mode through the Mitral Valve (3)
3	2D Parasternal Short Axis Zoom on Aortic Valve (5)
4	Parasternal Short Axis with Colour Doppler on Interventricular Septum (1)
5	2D Apical 4 Chamber (5)
6	TAPSE (3)
7	Apical 5 Chamber with Colour Doppler on Aortic Valve (3)
8	Subcostal 4 Chamber with Colour Doppler on the Interatrial Septum (3)
9	2D Suprasternal Aortic Arch (3)
10	PW Assessment of Coarctation (3)
	Modification of Patient Position to Optimise Image Quality (5)
	Image Optimisation (3)

Image List Four

2 minutes per acquisition Encourage candidates to move on if necessary	Image (Score Weighting)
1	2D Parasternal Long Axis (5)
2	2D Parasternal Long Axis tilt for Pulmonary Artery (5)
3	CW through Pulmonary Valve (2)
4	Parasternal Short Axis with Colour Doppler on Tricuspid Valve (2)
5	2D Apical 4 Chamber optimised for LV (5)
6	PW Doppler LVOT (3)
7	Apical 3 Chamber with Colour Doppler on Mitral Valve (3)
8	Subcostal Short Axis at Aortic Valve level (3)
9	Subcostal Abdominal Aorta (3)
10	Blind CW Doppler Descending Aorta (3)
	Modification of Patient Position to Optimise Image Quality (5)
	Image Optimisation (3)

Appendix Three - Sample Marksheet

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Candidate Number		Assessor								
Competency	Criteria	F	BF	BP	P	Weighting	Guidance	Max Score	Candidate Grade	Total
2D PLAX with CFM on Aortic Valve	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	5	Award P if image is high quality & optimised. BP if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the PLAX with CFM in the specific model.	15		
M-Mode of Mitral Valve	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	3	Award P if image is high quality & optimised. BP if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the M-mode of MV in the specific model.	15		
2D PSAX zoom on Aortic Valve	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	5	Award P if image is high quality & optimised. BP if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the PSAX AV zoom in the specific model.	9		
2D PSAX with CFM for Interventricular Septum	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	1	Award P if image is high quality & optimised. BP if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the PSAX CFM for IVS in the specific model.	3		
2D Apical 4 Chamber	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	5	Award P if image is high quality & optimised. BP if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the Apical 4 Chamber in the specific model.	15		

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TAP8E	Pays attention to detail & is able to recognise / acquire a good quality image	0	1	2	3	3	Award P if image is high quality & optimised. BF if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the TAPSE in the specific model.	3		
2D Apical 6 Chamber with CFM for Aortic Valve	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	3	Award P if image is high quality & optimised. BF if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the Apical 6 Chamber with AV CFM in the specific model.	16		
Subcostal 4 Chamber with CFM for Interatrial Septum	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	3	Award P if image is high quality & optimised. BF if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the Subcostal 4 Chamber with IAS CFM in the specific model.	9		
2D Suprasternal Aortic Arch	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	3	Award P if image is high quality & optimised. BF if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the Aortic Arch in the specific model.	9		
PW Assessment for Coarctation	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe. (PW in the arch & at least 1 point in the descending aorta)	0	1	2	3	3	Award P if image is high quality & optimised. BF if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the PW in the arch & descending aorta in the specific model.	9		
Modification of patient position to optimise image quality	Pays attention to detail & is able to consider manipulation of either patient position or respiratory manoeuvres improve image quality	0	1	2	3	6	Demonstration of manoeuvres to assist in securing high quality echo images within the time frame. Award P if high quality images are acquired. Award F if unable to demonstrate skills of manipulation in the specific model.	16		
Patient Identity	Checks patient ID using 3 unique identifiers	0	1	2	3	3	Award P if 3 unique identifiers are checked. BF if 2 are checked. BF if 1 identifier is checked. F if no checks are made.	9		
Total								141		
Final Outcome	FAIL						Comments / Feedback			

Appendix Four - Practical Scanning Mark Scheme

- F = Fail = 0 points:** unable to demonstrate appropriate skill set
- BF = Borderline Fail = 1 point:** unable to demonstrate appropriate skill set, is able to describe reasons how improvement could be achieved
- BP = Borderline Pass = 2 points:** able to acquire/demonstrate skill set although fails to optimize image acquisition quality
- P = Pass = 3 points:** able to fully demonstrate high quality image acquisition with appropriate optimization of images

Multiply the score achieved by the weighting given for each image/competency – see below:

Competency	Criteria	F	BF	BP	P	Weighting	Guidance	Max Score	Candidate Grade	Total
2D PLAX	Pays attention to detail & is able to recognise / acquire a good quality image within the required timeframe.	0	1	2	3	5	Award P if image is high quality & optimised. BP if image is clinically satisfactory with limited optimisation. BF if unable to acquire image but can identify remedial measures. F if unable to reproduce image which reflects the PLAX in the specific model.	15	2	10

The candidate achieves a borderline pass, the weighting for this image is 5, therefore the candidate achieves a score of 10 points.