

Inpatient echocardiography

A summary guide to clinical prioritisation of inpatient echocardiography

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About this guide

Effective triage of inpatient echocardiography referrals is critical to ensure timely diagnosis, optimise patient outcomes, and to allocate echocardiography resources responsibly. The increasing demand for inpatient transthoracic echocardiography (TTE) across diverse clinical settings has necessitated a standardised framework to guide prioritisation based on clinical urgency, anticipated impact on management and evidence-based best practices.

This guide has been developed in alignment with the British Society of Echocardiography (BSE) recommendations and national standards. It is intended to support clinicians, sonographers and service managers in making clear, consistent and patient-centred decisions regarding the urgency and appropriateness of echocardiograms in hospital settings.

By providing structured triage categories, visual aids and concise clinical criteria, this guide aims to:

- promote timely access to echocardiography for patients who need it most;
- prevent unnecessary or low-value imaging;
- facilitate communication between referrers and echocardiography teams;
- ensure efficient use of healthcare resources without compromising clinical quality.

This guide will serve as a valuable tool in enhancing echocardiographic service delivery and patient care. It should be used in conjunction with clinical judgement and local operational pathways, recognising that individualised care decisions remain essential, and is to be read and implemented alongside current guidelines from BSE.



Link to supporting resource

- [British Society of Echocardiography - Clinical indications and triage of echo in emergency, inpatient and critical care](#)

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Category 1 – within 1 hour of referral

- 1 Suspected pericardial effusion with signs of tamponade. Concern regarding cardiac tamponade following coronary intervention or permanent/temporary pace-maker insertion or lead extraction
- 2 Chest pain with haemodynamic instability. Suspected acute aortic dissection (echo should not delay CT)
- 3 Clinical suspicion of endocarditis with evidence of acute cardiac failure, valve decompensation, or root abscess
- 4 Cardiogenic shock as judged by an appropriately senior clinician. Return of circulation following cardiac arrest
- 5 Suspected acute pulmonary embolism in an unstable patient to guide thrombolysis decision

Category 2 – within 24 hours of referral

- 1 New diagnosis of heart failure with no previous recent echocardiogram (<12 months). Perform within 24 hours if haemodynamically unstable or decompensated) *See *Appendix for NT-proBNP*
- 2 Acute myocardial infarction with suspected complications
- 3 Pulmonary embolism if cardiovascular compromise persists following initial therapy
- 4 Acute pulmonary oedema with no recent echocardiogram
- 5 Pre-invasive coronary angiogram or permanent pacemaker (as recommended by GIRFT) insertion accepted by the cardiology team
- 6 Pre-operative non-cardiac emergency surgery with undiagnosed cardiac condition which will alter anaesthetic approach (new symptoms/signs of suspected cardiac condition, ECG, troponin, NT-proBNP)
- 7 Detection of high-risk complication of infective endocarditis where the patient is haemodynamically unstable

Category 3 – within 5 days of referral

- 1 New diagnosis of heart failure with no previous recent echocardiogram (<12 months). Perform within 5 days if haemodynamically stable and no evidence of decompensation *See *Appendix for NT-proBNP*
- 2 Syncope with systolic murmur or arrhythmia (Aim within 24 hours if murmur is new or documented malignant arrhythmia)
- 3 Stable acute coronary syndrome
- 4 Suspected infective endocarditis (as triaged based on [Dukes criteria](#))

Further information



Information for emergency TTE

Where a clinician of sufficient seniority suspects:

- acute circulatory failure due to life-threatening hypovolemia;
- acute systolic or diastolic heart failure;
- acute right heart failure due to pulmonary embolus; or
- cardiac tamponade.



Note:

- Focused echocardiography can be performed using a hand-held device. [Click for governance on hand-held device](#).
- If echocardiography is indicated but will not change immediate management then the scan should be performed as an outpatient.

See the BSE resource on [clinical indications and triage of echocardiography for outpatient requests](#)



Common reasons for declined inpatient echocardiogram

Requests for inpatient echocardiogram will be declined for the following reasons:

- Insufficient clinical details provided.
- Echocardiogram unlikely to alter clinical management.
- Normal NT-proBNP if clinical question is heart failure.
- Recent echocardiogram (<12 months) with the same referral indication.
- Clear source of sepsis and septicaemia other than infective endocarditis.
- Confirmed pulmonary embolism.
- Routine pre-operative echocardiogram.

Governance – hand-held device

Hand-held echocardiography offers rapid bedside assessment in acute care and requires robust governance. Clear scope, competency standards, protocol consistency, image storage, and integrated oversight are essential to maximise benefit and ensure patient safety.

Scope of use

- Not a substitute for full echocardiographic studies.
- Reserved for focused bedside use in acutely unwell patients. See [BSE level 1 protocol](#).

Oversight and clinical responsibility

- Define authorised personnel for performing and interpreting hand-held echocardiography.
- Restrict scanning to trained individuals competent in point-of-care focused protocols.
- Ensure supervising clinicians retain responsibility for interpretation and clinical decisions.
- Require supervising clinicians to be trained in echocardiography and its limitations.
- Establish clear escalation pathways for full diagnostic echocardiography when needed.

Technical standards and data storage

- Devices must deliver image quality sufficient for safe interpretation within the selected protocol.
- Standardise protocols organisation-wide to ensure consistency.
- Document any image or interpretation limitations in the patient record.
- Upload all images and findings to the trust's image management system. This enables audit, peer review, training feedback, and traceability within established governance structures.

Training, audit and continuous quality improvement

- Maintain a register of trained personnel for hand-held echocardiography.
- Conduct regular audits and peer reviews to assess ongoing competency.
- Include hand-held echo findings in routine departmental audit cycles.
- Monitor for variation in practice and outcomes to support quality improvement.
- Align governance standards with those for conventional echocardiography.

Appendix – Suspected heart failure

An NT-proBNP <300ng/L effectively rules out the diagnosis of acute HF regardless of the patient’s age and an alternative diagnosis should be sought.

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- For ruling in acute heart failure, the following age-adjusted cut-points indicate that HF is likely

Age (yrs)	<50	50-75	>75
Acute Heart failure likely if NT-proBNP (ng/L) is	≥450	≥900	≥1800

If the NT-proBNP concentration is intermediate (above 300 ng/L but below acute heart failure levels), reconsider the diagnosis. If after full reassessment, including ECG and CXR, HF is likely, request an echocardiogram.

Source

British Society of Echocardiography – [Clinical indications and triage of echo in emergency, inpatient and critical care](#)

Resources & Acknowledgements



[GIRFT Academy resources](#)



[FutureNHS resources](#)



[Click for flow chart](#)



[Model Health System Metrics](#)



[BSE guidance on clinical indications and triage of echo in emergency, inpatient and critical care](#)

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