



Document Title:	REQUESTING INPATIENT AND OUTPATIENT ECHOCARDIOGRAMS		
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Document type: (Policy/ Guideline/ SOP)	Guideline	To be followed by: (Target Staff)	All health professionals that request echocardiograms
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Developed in response to:	The need to prevent inappropriate requests for echocardiograms. The need to maximise the efficiency of the echocardiogram service.		
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1.0 Background

- 1.1** In 2018-2019 the echocardiography departments in Peterborough and Hinchbrook Hospitals performed over 15,000 echocardiograms. There is on average a 10% increase in demand year on year. Referrals are received from a variety of sources including GP open access, medical in patients, medical out patients, oncology, cardiology in patients, cardiology out patients, pre op assessment clinics. The majority of requests received are for out patient echocardiography (OPE).
- 1.2** There is time pressure from the RTT and the 6 week diagnostic targets for OPE. Similar pressures exist for the In patient echocardiography (IPE) service. A patient awaiting an IPE may be exposed to inadequate or inappropriate treatment, delays may also increase Length of Stay (LoS). There are also the important consideration of the occupational health of the workforce and quality and assurance standards. Often significant management decisions are based on the results of echocardiography and high quality is of paramount importance.
- 1.3** In patient echocardiography (IPE) is an important role of the department. In patient management may require key diagnostics which may be obtained from echocardiography alone. Typically 20-30 referrals for in patient echo may be received each day. On occasions this may rise to 40. Triaging these referrals is challenging and is wholly dependent on the clinical information the referrer provides. The current service is 9-5pm Monday to Friday however there will be an expansion of service provision over the next few years and a move towards a 7 day service.

Purpose

- 1.4** This document aims to provide refers with information to ensure echo requests are appropriate and outline the clinical situations in which echo is of value. The intention is that the number of inappropriate referrals received by the department will reduce. This will improve access to those patients who require echo and improve the efficiency of the department.
- 1.5** Referral systems for echo include the 'general' referral and the 'suspected endocarditis' referral. The minimum requirement for clinical details and how these are used to triage will be outlined. In addition the appropriate scenarios when in patient echocardiography is necessary will be outlined and the policy for escalation of clinically important findings. In many cases patients are best served by an early OPE.



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- 1.6 This document is aimed at the clinicians referring for echocardiography for in patients. It is also to support best practice within the echo department and to ensure transparency and consistency for triaging of in patient echocardiography. The escalation policy for clinical unexpected/important findings is relevant to the physiologists performing the investigation and the referring clinicians. It is analogous the radiology 'Red Star' reporting system.

2.0 Equality Impact Assessment

- 2.1 NWAFT is committed to the provision of a service that is fair, accessible and meets the needs of all individuals. In accordance with this, the echocardiogram guidelines are based on clinical factors and will not be affected by race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation or age.
(Refer to Appendix A)

3.0 Scope

- 3.1 This document is a guideline for the appropriate use criteria for in patient echo however there will be occasions when clinical situation requires adaptation of this guideline.

4.0 Infection Prevention/Control

- 4.1 All staff performing OPEs and IPEs will follow the Trusts Hand Hygiene Policy. The echo probe will be cleaned after each use with a suitable disinfectant wipe. All equipment which has come into contact with the patient will be cleaned in line with trust infection control policies and guidelines.

5.0 Duties and Responsibilities

- 5.1 All clinicians and AHP who refer for in patient echo should be familiar with this policy.
- 5.2 All physiologists working within the department should be familiar with this policy and use the guidelines for triaging and re-direction of referrals to out patient slots. The escalation policy should be followed.
- 5.3 The wider Cardiology directorate should be familiar with the contents and re-enforce the contents in their own clinical practice.

6 Process and Content

6.1 Making a referral

6.1.1

All 'in patient' echo requests must be made using the Anglia ICE electronic requesting system for 'In Patient Echo'. If there is uncertainty as to whether the echo is required before discharge the request should be discussed with the Consultant responsible for the patients care.

6.1.2

The clinical information should describe:

- **The current clinical status of the patient** ie. Breathless, tachycardia, hypotensive with relevant patient observation data.
- **The clinical question the echo is required to aid answer** ie. Pericardial effusion/significant AS/LVEF
- **The relevant past medical history** ie previous diagnosis of heart failure, previous MI, known valvular heart disease, previous chemotherapy etc.
- **The relevant past surgical history** ie previous CABG, Valve replacement-giving details if known, mastectomy, thoracic surgery, open wounds.
- **The mobility of the patient**
- **The ability of the patient to understand and give consent to the examination.** If the patient is unable to give consent then the referrer should perform a DOLS assessment and discuss the case.
- **MRSA/infection status**

6.1.3 Please note that the request for In Patient echo will be vetted and triaged according to the information provided. The quality of your referral and the more information provided the higher the chance that the request will be prioritised correctly. Please also remember in that when making a request for an echocardiogram you are in effect making a referral to the Cardiac Physiologists and cardiology team. Please demonstrate respect for the experience and knowledge of the Cardiac Physiologist's.

6.2 Referrers details



The responsible Consultant must be entered correctly. The referrer should leave a contact bleep number. If the referral is made whilst on call then the destination ward if known should be entered.

6.3 Urgent requests to be performed within 2 hours (where possible)

An emergency IPE may be useful in the management of patients in specific circumstances (see section 8). In such cases it is best to contact a cardiology registrar and/or visit the cardiac department to personally request the echo study. The physiologist using the portable echo machine also has an emergency bleep. The number can be obtained from the cardiac department in emergency situations only.

Echocardiograms performed in A+E using the vascular access US probe do not constitute an In Patient Echo. There is not image storage, no system for reporting and therefore no Clinical Governance structure.

7.0 Considerations for Requesting an Echocardiogram

- 7.1** Firstly check that an echocardiogram has not recently been performed. If the report cannot be located in ICE it can be accessed via TOMCAT or from the cardiac department.
- 7.2** Ensure that the reason for the request is clearly stated and include all relevant clinical details. All requests will be screened. Ambiguous requests or those which fall outside the accepted guidelines will be returned.
- 7.3** Remember practicalities. Body habitus (physique type), significant respiratory disease and heart rates >100bpm make transthoracic echocardiogram (TTE) technically difficult. This may result in an inconclusive study.
- 7.4** All request forms must be completed fully with Consultant name, requesting Doctors name and bleep number.
- 7.5** Requests from A&E will not generally be accepted unless they fall within the 'emergency requests' category. It is usually better for an echo to be requested once the patient has been admitted to a ward and is therefore under the care of a Consultant. If the indication for IPE does not fall within the emergency category but is still required it is best to consult a cardiology registrar.
- 7.6** IPEs should not be used for monitoring chronic conditions or where the data obtained has no immediate impact on patient management.

8.0 Inpatient Echocardiogram Triage

8.1 Grade 1 (Emergency Echo) Echocardiography to be done immediately/within 2 hours

- 8.1.1 Suspected tamponade
- 8.1.2 Suspected acute PE with haemodynamic instability
- 8.1.3 Suspected aortic dissection
- 8.1.4 Cardiogenic shock
- 8.1.5 In setting of peri arrest/cardiac arrest/post arrest if result will influence management

8.2 Grade 2 (Within 24 hours)

Results likely to change immediate patient management and to be done within 24 hours. Priority within that time to be discussed with the Cardiac Investigations Department and/or Cardiology doctors:

- 8.2.1 Suspected Infective Endocarditis if high risk of complication ie previous valve replacement, ACHD, previous IE, recent embolic event, signs of CCF, fevers and rigors
- 8.2.2 Severe acute HF
- 8.2.3 Clinically suspected symptomatic AS (ie murmur plus CCF/syncope/chest pains)

8.3 Grade 3 (during inpatient stay)

- .3.1 NSTEMI on PRIS for transfer to RPH
- .3.2 New or suspected diagnosis of cardiomyopathy/ structural heart disease including ACHD if evidence of acute HF, arrhythmia.
- .3.3 Stroke if; <50 years, evidence to suggest structural heart disease, no risk factors for CVA, fever or raised inflammatory markers
- .3.4 All other suspected IE requests if sufficient clinical criteria to warrant an echo
- .3.5 Large PE if raised troponin/abnormal ECG or evidence of right heart strain on CT
- .3.6 Assessment of LV function to guide device therapy
- .3.7 Patients with NT-Pro BNP in the range of 400-2000, where acute HF is considered less likely (for Hand Held Echo to guide therapy. If overtly and severely abnormal findings will need standard IP Echo, if no severe abnormality on hand held, will be scheduled for routine OP Echo appointment.

8.4 Grade 4 Triaged to OPE (2 weeks if suspected HF, within 6 weeks otherwise)

- 8.4.1 New diagnosis of heart failure if not haemodynamically unstable (for standard Echo having already had inpatient Hand Held Echo to guide therapy)
- 8.4.2 New onset AF
- 8.4.3 Reassessment of known valvular disease if haemodynamically stable



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- 8.4.4 Suspected cardiomyopathy if clinically stable
- 8.4.5 Assessment of pericardial disease/effusion if clinically stable
- 8.4.6 Assessment of possible pulmonary hypertension if clinically stable



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Triaged to OP echo (6 weeks if general request)	Next available (During inpatient stay)	Urgent (within 24 hours)	Emergency (within 2 hours where possible) Inform department may be a hand held study
New diagnosis of heart failure if not haemodynamically unstable (having had Hand held Echo assessment as IP) New onset AF Reassessment of known valvular disease if haemodynamically stable Suspected cardiomyopathy if clinically stable Assessment of pericardial disease/effusion if clinically stable Assessment of possible pulmonary hypertension if clinically stable	NSTEMI on PRIS for transfer to RPH New or suspected diagnosis of cardiomyopathy/ structural heart disease including ACHD if evidence of acute HF, arrhythmia. Stroke if; <50 years, evidence to suggest structural heart disease, no risk factors for CVA, fever or raised inflammatory markers All other suspected IE requests if sufficient clinical criteria to warrant an echo Large PE if raised troponin/abnormal ECG or evidence of right heart strain on CT Assessment of LV function to guide device therapy Preliminary assessment of LV function to guide IP therapy. NT-Pro BNP 400-2000, where acute HF is considered less likely (for Hand Held Echo)	Suspected Infective Endocarditis if high risk of complication ie previous valve replacement, ACHD, previous IE, recent embolic event, signs of CCF, fevers and rigors Severe acute HF Clinically suspected symptomatic AS (ie murmur plus CCF/syncope/chest pains)	Suspected tamponade Suspected acute PE with haemodynamic instability Suspected aortic dissection Cardiogenic shock In setting of peri arrest/cardiac arrest/post arrest if result will influence management

8.5 Requests for 'Query endocarditis'

Endocarditis is suspected very frequently, but the yield from echocardiography in such patients is very low.

Requests should meet at least 3 of the criteria below. It is not necessary to wait for the results of echocardiography before referring such a patient to the cardiology department if the clinical suspicion of endocarditis is high. All patients with suspected endocarditis in the context of prosthetic heart valves or implantable devices such as pacemakers should be referred to cardiology.

8.5.1 Criteria

- 8.5.1.1 Positive blood culture with an organism consistent with endocarditis, raised CRP, pyrexia, new murmur, embolic phenomenon

If the criteria are not met, the request will be rejected unless the request includes the name of a consultant cardiologist, consultant in infectious diseases, or consultant microbiologist who has authorised the request.

8.5.2 Organisms consistent with Endocarditis

Organism consistent with Endocarditis	Percentage %	Comment
Staph Aureus	31%	note that while Staph Aureus is a cause of endocarditis, the majority of Staph Aureus bacteraemias are not caused by endocarditis, and so a lower index of suspicion is appropriate compared to other organisms such as Viridans strep particularly where there is an alternative source of sepsis
Viridans group streptococci	17%	Includes P. mutans, S. mitis, S. sanguinus, P. anginosus, S. oralis and S. salivarius
Enterococci	11%	In absence of other focus
Coagulase-negative staphylococci	11%	
Streptococcus bovis	7%	
Non-HACEK gram-negative bacteria	2%	
HACEK	2%	Organisms in this category include a number of gram-negative bacilli: Haemophilus aphrophilus (subsequently called Aggregatibacter aphrophilus and Aggregatibacter paraphrophilus); Actinobacillus actinomycetemcomitans (subsequently called Aggregatibacter actinomycetemcomitans); Cardiobacterium hominis; Eikenella corrodens; and Kingella kingae.

Note that the spectrum of organisms that cause endocarditis on prosthetic valves early after surgery (up to 1 year) is different, including a high proportion of staph epidermidis, staph aureus, and fungi. Causes of late prosthetic endocarditis (>1 year after surgery) are similar to those that cause endocarditis on native valves.



9.0 Outpatient Echocardiogram Triage

9.1 Grade 2-Routine Outpatient Appointment.

Most patients will fit this category. See BSE Echocardiography Indications (Appendix 1) for further information of appropriate use criteria for Echocardiography in different clinical situations.

9.2 Grade 3-No Appointment.

A condition for which there is evidence and/or agreement that echocardiography is *not* useful or effective. Any referral falling in to this class will not be offered an appointment unless approved by a Consultant Cardiologist. The referral form will be returned to the referring clinician and it will then be their responsibility to discuss it further with cardiology if required.

10.0 Special Situations:

10.1 GP Open Access Echocardiography

GP open access echo is most appropriate in the following situations:

Known Hypertension with voltage criteria for LVH on 12 lead ECG

New murmur and clinically well

Suspected Heart Failure NT pro BNP 400-2000

New AF started on rate control medication

10.2 Cardio-oncology

New guidelines for management of Cardio-oncology Echocardiograms and surveillance are currently in development

11.0 Escalation of Clinically Important Findings

11.1 Refer to Escalation of Abnormal Results SOP (C1246)

12.0 Non-compliant Requests

12.1 All requests will be screened for compliance with the indications

12.2 Non-compliant requests will be rejected and the requesting Doctor informed.

12.3 In instances where a request does not comply with the indications but an echocardiogram is still required by the requesting Doctor the request should be discussed with a Senior Echocardiographer who may forward it onto the Cardiology Consultants. An individual assessment may be made.

13.0 Audits

13.1 On ratification of this document and dissemination to the individuals who request echocardiography an annual audit of requests will be conducted for compliance with this policy.

The result of this audit will be presented a Clinical Governance session.

14.0 Breaches

14.1 In the event of any breaches of this procedure that lead to patient harm of any kind. A risk event form must be completed.

14.0 References

ACCF/ASE/AHA/ASNC/HFSA/HRS/SCAI/SCCM/SCCT/SCMR.(2011). Appropriate Use Criteria for Echocardiography. Journal of American Society of Echocardiography. 24:229-67.

British Society of Echocardiography (2014) Clinical Indications for Echocardiography http://bsecho.azurewebsites.net/media/64844/indications_for_echocardiography.pdf

National Institute for Health and Care Excellence (2010) Chest pain of recent onset: Assessment and diagnosis. Clinical Guideline (CG 95). London: NICE.

National Institute for Health and Care Excellence (2014) Atrial Fibrillation: management. Clinical Guideline (CG 180). London: NICE.

National Institute for Health and Care Excellence (2014) Acute heart failure: diagnosis and management. Clinical Guideline (CG 187). London: NICE.