

REFERRAL CRITERIA AND AUTHORISATION PROTOCOLS for CARDIAC NUCLEAR MEDICINE INVESTIGATIONS

SECTION ONE: BACKGROUND

The Ionising Radiation (Medical Exposure) Regulations [IR(ME)R] 2000 require all investigations using ionising radiation to be individually justified. The Nuclear Medicine department has produced the following table of referral criteria which, if met, would allow justification of cardiac nuclear medicine procedures under most circumstances. Where possible these are taken from professional body guidelines:

- British Nuclear Medicine Society
<http://www.bnms.org.uk/>
- European Association of Nuclear Medicine
<http://www.eanm.org/>
- Society of Nuclear Medicine
<http://www.snm.org/>
- The British Nuclear Cardiology Society
www.bnccs.org.uk/
- The American Society of Nuclear Cardiology
<http://www.asnc.org/>
- The National Institute for Health and Clinical Excellence
<http://www.nice.org.uk/>

The referral procedure for non-cardiac procedures, including therapies and non-imaging investigations, is held in a separate document, *Referral Criteria and Authorisation Protocols for Non-Cardiac Nuclear Medicine Procedures*.

The following notes provide advice for referrers on all aspects of the referral, justification and authorisation process, however the department of Nuclear Medicine will be happy to provide further or more specific guidance if requested.

Hull And East Yorkshire Hospitals NHS Trust

Nuclear Medicine Department

Cardiac Referral Criteria

SOP Code: E014

SECTION TWO: REFERRERS, PRACTITIONERS AND AUTHORISATION OF REQUESTS

Nuclear Medicine Referrers

Any medically qualified staff working for North Lincolnshire and Goole Foundation NHS Trust, can request a Nuclear Medicine study which may be authorised under protocol by persons other than the ARSAC certificate holder if appropriate.

Any UK Registered Medical Practitioner employed by a body other than the NHS Trusts mentioned above can request a Nuclear Medicine study but all requests must be authorised by an ARSAC licence holder prior to appointment, with the exception of studies suggested by an ARSAC licence holder either on a previous report or by direct contact with the referrer.

Other staff groups (such as State Registered Nurses, Radiographers etc) may request Nuclear Medicine Investigations under protocol, but these referrals must be authorised by an appropriate ARSAC certificate holder unless stated in the appropriate protocol.

By law, all referrers MUST sign and date the request and print their name and job title in block capital letters before the request can be approved. If this is not done we cannot perform the requested procedure and the request will be returned to the referrer for completion before approval.

Nuclear Medicine Practitioners

Under IR(ME)R 2000, all requests for exposure to ionising radiation must be authorised by an IR(ME)R practitioner to ensure that the benefit to the patient out-weighs the potential detriment. In Nuclear Medicine all practitioners are ARSAC license holders. The ARSAC certificate holder for nuclear cardiology procedures within Hull and East Yorkshire Hospitals NHS Trust is currently Dr. Ann Tweddel, Consultant Cardiologist.

Justification of Requests

All requests received by the department require justification by an ARSAC licence holder prior to appointment. However, written protocols exist to allow named persons other than the ARSAC licence holders to authorise many of the routine studies performed by the department. These studies are indicated by an asterisk in the following tables.

In-patient requests should be authorised within 1 working day.

Justification of Paediatric Procedures

Authorisation for paediatric studies (with the exception of routine DMSA and MAG3 studies) will always be performed by the ARSAC license holder.

Justification of Procedures during Patient Pregnancy

For pregnant patients the referrer should discuss the request directly with the ARSAC license holder

Justification of Requests as Part of Research and Clinical Trials

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Written By: Katrina Cockburn
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Investigations as part of research or clinical trials require a research ARSAC license specific to the study/trial. Therefore, such investigations must be discussed with the department prior to requesting.

Persons who can Authorise Diagnostic Studies in accordance with the Written Protocols

Any member of staff employed by the Nuclear Medicine Department at Hull and East Yorkshire Hospitals NHS Trust who is approved by an ARSAC certificate holder to authorise Nuclear Medicine Investigations in their absence.

Any medically trained person employed by Hull and East Yorkshire Hospitals NHS Trust who is approved by an ARSAC certificate holder to authorise Nuclear Medicine Investigations in their absence.

A list of the names of the persons approved to authorise procedures and the names of the procedures they may authorise is held within the department and is available on request

Referral Method

By completion of a nuclear cardiology request card, which may be faxed to the department providing the original request is received before the examination is carried out, or by electronic referral where available. Please note that the nuclear cardiology request cards are different to the general nuclear medicine request cards and are available from the departments at Castle Hill and Hull Royal.

SECTION THREE: INFORMATION REQUIRED ON NUCLEAR MEDICINE REQUESTS

Clinical Information

It is a legal requirement under IR(ME)R that request cards for nuclear medicine procedures contain sufficient clinical detail to allow the justification and authorisation of the procedure. The regulations state that it is the responsibility of the referrer to provide sufficient clinical detail to enable the Practitioner to decide whether there is sufficient benefit to the patient. In Nuclear Medicine the Practitioner will always be one of the ARSAC holders.

Patient Information on Request Card

The following information about the patient is required as a minimum:

- patient's full name
- address
- date of birth
- sex
- HEY number (hospital number if HEY number not available).
- hospital and ward / clinic, or GP practice
- consultant or GP name
- clinical question to be answered
- investigation suggested
- whether the patient is pregnant or breastfeeding including date of last menstrual period
- clinical diagnoses
- any relevant medication
- any previous tests which may interfere with this test (e.g. any procedure which requires administration of a radio-opaque substance, or any previous nuclear medicine procedure)
- medical or other potential risk to staff
- language or communications difficulties
- research projects or clinical trials must be clearly identified **(N.B. Specific ARSAC approval is required for these investigations)**

Referrer Identification

Signature of referrer, referrer name (printed legibly) and referrer status are required by law.

**The law requires that cards without the above clinical, patient and referrer information are returned to the referrer.
We CANNOT perform the test without this information.**

Supplementary Drugs

Some investigations require the administration of other, non-radioactive pharmaceuticals as an essential part of the test. For myocardial perfusion tests this may include any of those listed below either solo or in combination:

Adenosine,
Dobutamine,
GTN,
Dipyridamole

In addition we may administer any pharmaceutical considered necessary to mitigate the effects of the agents listed above.

Your request for an investigation will be taken as implying agreement to the administration of the specified supplementary drugs. If you are unhappy about your patient being given these drugs or you feel they are contraindicated this must be clearly stated on the request card.

All nuclear cardiology procedures involve administration of Sodium Chloride for parenteral use (0.9% w/v) in order to test the patency of the IV devices and to flush the radiopharmaceutical through the device.

SECTION FOUR: PATIENT EFFECTIVE DOSE

Patient Effective Dose

All of the investigations are listed together with an approximate effective dose in mSv. This is for the recommended ARSAC Diagnostic Reference Level of administered activity and the effective dose is taken from the latest version of the ARSAC Notes for Guidance. The administered activity may be altered accordingly to allow for body habitus, pregnancy, scan-type, etc and so the actual effective dose received by the patient may differ from that stated.

We have the capability to perform hybrid imaging and attenuation correction with SPECT/CT in some investigations. This may be added to the investigation if the ARSAC license holder considers it necessary and will be justified as with any other exposure to ionising radiation. The use of CT causes an additional radiation dose which is not included in the total dose for the investigation. The effective dose for scanning a whole field of view is typically in the order of 0.8mSv for the chest.

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SECTION FIVE: REFERRAL CRITERIA FOR DIAGNOSTIC IMAGING STUDIES

Myocardial Perfusion Imaging ²⁰¹Tl, ^{99m}Tc Myoview (Tetrofosmin) or ^{99m}Tc Cardiolite (SestaMIBI)	
Indication <small>(with references where appropriate)</small>	Effective Dose (mSv)
Assess the presence and degree of coronary obstruction in patients with known or suspected coronary artery disease ^{1,5,6,7}	3 – 18
To determine the likelihood of future events for patients with known coronary artery disease ^{1,5,6}	3 – 18
To guide myocardial revascularisation by determining the haemodynamic significance of coronary lesions ^{1,5,6}	3 – 18
To assess the adequacy of percutaneous and surgical revascularisation ^{1,5,6,7}	3 – 18
To assess myocardial viability, particularly with reference to planned myocardial revascularisation ^{1,5,6}	3 – 18
Assessment of the haemodynamic significance of known or suspected anomalous arteries and muscle bridging ⁵	3 – 18
Assessment of the haemodynamic significance of coronary artery disease in Kawasaki's syndrome ⁵	3 – 18
Risk assessment in asymptomatic patients with moderate to high risk factors ⁶	3 – 18
Risk assessment for non-cardiac surgery ⁶	3 – 18
Assessment of the extent of myocardial scarring and/or ischaemia	3 – 18
Assessment of the presence, extent and severity of endothelial dysfunction	3 – 18

Radionuclide Ventriculography ^{99m}Tc Labelled Erythrocytes		
Indication <small>(with references where appropriate)</small>	Supplementary Drugs	Effective Dose (mSv)
Assessment of left and/or right global ventricular systolic function ¹	Stannous Agent	6
Assessment of regional wall motion ¹	Stannous Agent	6
Evaluation of cardiac function in patients undergoing chemotherapy ¹	Stannous Agent	6
Pre-surgical assessment of ventricular function prior to non-cardiac surgery	Stannous Agent	6
Assessment of ventricular function in patients with valvular stenosis and/or insufficiency ¹	Stannous Agent	6
Serial assessment of ventricular function in patients treated with agents known to cause cardiac dysfunction	Stannous Agent	6

Any other Investigation required should be discussed with the ARSAC licence holder

References

1. Society of Nuclear Medicine Guidelines (www.snm.org/policy/guidelines_download.html)

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2. British Nuclear Medicine Society (www.bnms.org.uk/)
3. European Association of Nuclear Medicine (www.eanm.org/)
4. ARSAC Notes for Guidance on the Clinical Administration of Radiopharmaceuticals and Use of Sealed Radioactive Sources. March 2006
(http://www.arsac.org.uk/notes_for_guidance/docs/arsac_nfg.pdf)
5. The British Nuclear Cardiology Society (<http://www.bnms.org.uk/>)
6. The American Society of Nuclear Cardiology (<http://www.asnc.org/>)
7. The National Institute for Health and Clinical Excellence (<http://guidance.nice.org.uk/TA73>)