

# **CI.E Produce Magnetic Resonance images for diagnostic purposes**

## **OVERVIEW**

This standard is concerned with the use of Magnetic Resonance imaging (MRI) equipment and procedures to produce images for diagnostic purposes.Users of this standard will need to ensure that practice reflects up to date information and policiesVersion No 1

#### KNOWLEDGE AND UNDERSTANDING

You will need to know and understand:

1.the current European and national legislation, national guidelines and local policies and protocols which affect your work in relation to Magnetic Resonance imaging and Magnetic Resonance imaging safety procedures, including: 1.health and safety at work 2.safe working methods 3.control of infection, including aseptic techniques 4.use of hazardous materials 5.waste disposal 6.use of medical devices and product liability 7.security within the workplace 8.consent to magnetic resonance examinations 9.patient identification 10.data entry, utilisation, recording and transfer 2.your responsibilities and accountability under the current European and national legislation and local policies and protocols 3.limitations of own knowledge and experience and the importance of not operating beyond this 4.the roles and responsibilities of other team members 5.clinical justification of the examination request 6.the information that should be given to patients: 1.before commencing the examination 2.during the examination 3.on completion of the examination 7.contra-indications, including absolute and relative, to Magnetic Resonance scanning including the clinical implications of any allergy relevant to the examination 8 the gross, surface and cross-sectional anatomy of the areas to be scanned 9.medical terminology relevant to the examination, including abbreviations

10.the relevant physiology of the areas to be scanned

- 11.the common normal variants and their appearance on Magnetic Resonance images
- 12.common pathologies of the areas to be scanned and their appearance on Magnetic Resonance images
- 13.manifestations of patients' physical and emotional status
- 14.when additional images are required to aid diagnosis and to enhance the examination 15.the principles of Magnetic Resonance physics
- 16.controlled areas and safety requirements in the Magnetic Resonance environment
- 17.the ways in which Magnetic Resonance images can be captured, processed, transferred and permanently stored
- 18.the physical principles of Magnetic Resonance scanning including number of acquisitions, number of slices and Magnetic Resonance contrast media
- 19.the process involved in the production of Magnetic Resonance images, scanning techniques and protocols
- 20.technical and diagnostic quality requirements of the image
- 21.artefacts on images their causes and avoidance strategies
- 22.factors which influence the decision to repeat images or take additional images 23.alternative imaging examinations
- 24.safe operation of the Magnetic Resonance scanner and accessories in use
- 25.the use of quality assurance (QA) equipment, recording results and taking appropriate action
- 26.equipment capabilities, limitations and routine maintenance including the quality control processes required by the operator
- 27.the importance of timely equipment fault recognition and local procedures for reporting these
- 28.patient preparation procedures for Magnetic Resonance scanning
- 29.the importance of checking for presence of metallic objects/prostheses, including cardiac pacemakers, and the appropriate action to take
- 30.preparation of environment and equipment for Magnetic Resonance scanning
- 31.patient and equipment positioning, including those required for comfort and immobilisation, relevant to examination being performed
- 32.local procedures and procedures pertaining to recording, collating and preparing appropriate patient documentation and images for transfer or storage according to local protocols

# PERFORMANCE CRITERIA

You must be able to do the following:

- 1.apply standard precautions for infection prevention and control and other appropriate health and safety measures
- 2.receive the patient and check his/her identification details in accordance with local protocols
- 3.check for Magnetic Resonance imaging safety by use of the department Magnetic Resonance imaging safety check list which will include checking for the presence of metallic objects/prostheses, including cardiac pacemakers, and take appropriate action

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- 4.examine previous relevant images and clinical information, where available, to ensure that the correct procedure and techniques are employed
- 5.assess the patient's clinical and physical condition prior to the start of the examination with a view to proceeding
- 6.check females of child-bearing age for pregnancy or potential pregnancy, if appropriate to the examination, and take action in accordance with local protocols
- 7.confirm the status of carers before the examination and, where their presence is required, adhere to local guidelines and rules
- 8.enter the identification details of the patient into the Magnetic Resonance scanner or, if previously entered, check for accuracy
- 9.accurately select all sequences required for the scan according to local protocols for the procedure, assess and any required modifications and take appropriate action
- 10.position the patient and adjust their clothing according to the protocols for the examination to be performed in a manner which allows an optimal outcome to be achieved while:

1.recognising the patient's need to retain their dignity and self respect

2.ensuring his/her comfort as far as possible

- 3 preventing the appearance of artefacts
- 11.correctly and safely position appropriate Radio Frequency (RF) coils
- 12.check the room prior to taking the scan to ensure that only essential protected persons remain and that all local rules have been adhered to, taking appropriate action where necessary
- 13.commence the scan and monitor the patient's condition and compliance throughout the procedure and take action appropriate to the his/her needs
- 14.review the images on completion of the scan to ensure they are technically acceptable and suitable for diagnostic purposes
- 15.review images for clinical acceptability, take appropriate action, including further imaging if required
- 16.inform the patient or carer of the results procedure and answer any questions or refer them to the appropriate person
- 17.refer to the referring clinician or departmental radiologist if an abnormality is observed on the image which is likely to require further investigation or treatment, following departmental protocols
- 18.optimise, record, collate and prepare appropriate patient documentation and images for transfer or storage according to local protocols
- 19. recognise where help or advice is required and seek it from appropriate sources

## ADDITIONAL INFORMATION

This National Occupational Standard was developed by Skills for Health. This standard links with the following dimension within the NHS Knowledge and Skills Framework (October 2004): Dimension: HWB6 Assessment and Treatment PlanningThis standard has replaced HCS\_MR5