

## CI.D1 Produce C.T. scanning images of the brain

### OVERVIEW

This standard is concerned with the use of computerised tomography equipment and procedures to produce images of the brain for diagnostic purposes. Users of this standard will need to ensure that practice reflects up to date information and policies. Version 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 practice in relation to the use of ionising radiation, including:
  1. health and safety at work
  2. safe working methods
  3. control of infection
  4. use of hazardous materials (COSHH)
  5. waste disposal
  6. use of medical devices and product liability
  7. security within the workplace
  8. consent to radiological examinations
  9. patient identification
  10. data entry, utilisation, optimisation, 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. The 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. The harmful effects of radiation to the human body
8. The medical terminology relevant to the examination including abbreviations
9. Contra-indications (absolute and relative) to CT scan of the brain including the clinical implications of any allergy relevant to the examination.
10. The surface markings of the skull, the “radiographic lines” of the skull and the cross-sectional anatomy of the brain

- 11.The physiology of the brain and its blood supply
- 12.The common normal variants and their appearance on CT images
- 13.Common pathologies of the brain and their appearance on CT images
- 14.Manifestations of patients' physical and emotional status
- 15.When additional images are required to aid diagnosis and to enhance the examination
- 16.Production, interactions and properties of x-rays
- 17.The physical processes involved in the production of CT images, scanning techniques and protocols
- 18.The ways in which CT images can be captured, processed and permanently stored
- 19.The physical principles of CT scanning including effect of KVp, mAs, pitch, collimation, reconstruction kernels, Hounsfield units, windowing, slice thickness, reconstruction increments and raw data
- 20.Alternative imaging examinations
- 21.The technical and diagnostic quality requirements of the image
- 22.Artefacts on images - their causes and avoidance strategies
- 23.Factors which influence the decision to repeat images or take additional images
- 24.The safe operation of the CT scanner and accessories in use
- 25.The use of 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 CT scanning
- 29.Patient and equipment positioning (including those required for comfort and immobilisation) relevant to examination being performed
- 30.Preparation of the environment and equipment for CT Scanning

## PERFORMANCE CRITERIA

You must be able to do the following:

- 1.apply standard precautions for infection 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 females of child-bearing age for pregnancy or potential pregnancy, if appropriate to the examination, and take action in accordance with local protocols
- 4.confirm the status of carers before the examination and, where their presence is required, adhere to local guidelines and rules
- 5.enter the identification details of the patient into the CT scanner or, if previously entered, check for accuracy
- 6.accurately select all parameters required for the scan according to local scan protocols for the procedure, assess and any required modifications and take appropriate action
- 7.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
- 8.check the room prior to making the exposure to ensure that only essential, protected persons remain with the patient and that all local rules have been adhered to
- 9.commence the scan and monitor the patient's condition and compliance throughout the procedure and take action appropriate to the his/her needs
- 10.view the images on completion of the scan to ensure they are technically acceptable and suitable for diagnostic purposes
- 11.take appropriate action, including further imaging if required
- 12.monitor and record the patient's exposure to ionising radiation throughout the procedure according to local protocols and rules
- 13.observe the patient's condition and well-being at all times and take appropriate action
- 14.refer to the referring clinician if an abnormality is observed on the image which is likely to require further investigation or treatment, following departmental protocols
- 15.inform the patient/carer of the results procedure and answer any questions or refer them to the appropriate person
- 16.optimise, record, collate and prepare appropriate patient documentation and images for transfer or storage according to local protocols
- 17.recognise where help/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 planning.