SFHR12
Deliver external beam kilovoltage radiation

Overview

This standard is concerned with the delivery of external beam kilovoltage radiation to an individual patient according to a previously developed treatment plan.

Users of this standard will need to ensure that practice reflects up to date information and policies.

SFHR12
Deliver external beam kilovoltage radiation

Performance criteria

You must be able to:

- P1 apply standard precautions for infection control and other appropriate health and safety measures
- P2 check and assess all treatment parameters and confirm that the treatment can be safely and accurately delivered
- P3 assess discrepancies against the locally stated tolerances to determine whether treatment can proceed or further action is required
- P4 make a final critical evaluation of the environment and patient prior to delivery of the radiation dose
- P5 review any deviations from the protocol and take appropriate action
- P6 check all parameters, settings, monitoring and measuring devices used in kilovoltage external beam radiation for function and accuracy of setting before treatment is delivered
- P7 check, before treatment commences, to ensure that no one except the patient remains in the room
- P8 deliver the dose according to the plan
- P9 observe the patient, equipment and treatment room during the treatment to detect any untoward events which may affect treatment delivery
- P10 provide an accurate permanent record of the treatment given by kilovoltage external beam radiation according to local protocols
- P11 assess the patient's needs on completion of the procedure and offer support as required
- P12 respond appropriately to any incidents, errors or accidents according to local and national requirements
- P13 regularly compare the cumulative dose with the original plan throughout the course of treatment to determine the degree of compliance, and take corrective action where necessary
- P14 recognise where help/advice is required, and seek this from appropriate sources

SFHR12
Deliver external beam kilovoltage radiation

Knowledge and understanding

You need to know and understand:

K1 the legislation and protocols relating to radiotherapy, in the areas of:
- K1.1 current radiation protection regulations and local rules
- K1.2 local protocols for data entry, utilisation, recording and transfer
- K1.3 local protocols for verifying and validating treatment
- K1.4 local protocols on informed consent
- K1.5 local protocols for patient identification
- K1.6 national and local guidelines for radiotherapy planning and treatment

K2 the importance of applying standard precautions and the potential consequences of poor practice

K3 the limitations of your own knowledge and experience and the importance of not operating beyond this

K4 the roles and responsibilities of other team members

K5 relevant anatomy, physiology and pathology e.g. regional, cross-sectional and functional

K6 signs of patient distress and anxiety

K7 clinical signs and symptoms which require attention and intervention

K8 contraindications for treatment

K9 concurrent and malignant disease progression and the potential impact on physiological systems

K10 the side effects of radiotherapy and ways of managing them

K11 infection control procedures

K12 the effects of other treatment modalities used in treatment delivery and their side-effects e.g. chemotherapy

K13 how to critically appraise a patient's preparation and treatment against relevant planning/patient information

K14 the implications of matching photon, electron and kilovoltage beams

K15 the use of kilovoltage beams in radiotherapy treatment

K16 the principles of radiobiology including:
- K16.1 effects of radiation on the cell cycle
- K16.2 dose and fractionation regimes

K17 the principles of radiotherapy, including:
- K17.1 patient positioning and immobilisation in order to optimise reproducibility of treatment delivery
- K17.2 selection of appropriate treatment technique for optimum delivery
- K17.3 contra-indications to treatment

K18 the principles of radiotherapy physics including:
- K18.1 interaction processes with matter
- K18.2 the use of beam filters
- K18.3 impact of treatment parameters or changes to treatment parameters on dose distribution

K18.4 use of beam modifiers in changing the beam shape

K19 the functions and safe use of the kilovoltage external beam radiation treatment unit controls, other equipment used in radiotherapy and an awareness of the technical limitations of specific treatment units

K20 the advantages, disadvantages, risks and benefits of radiotherapy including effects of:

K20.1 stand-off

K20.2 apposition

K20.3 backscatter

K20.4 use of lead

K21 care of equipment

K22 equipment capabilities, limitations and user maintenance

K23 efficiency and efficacy of patient immobilisation and positioning devices

SFHR12
Deliver external beam kilovoltage radiation

Additional Information

External links

This standard links with the following dimension within the NHS Knowledge and Skills Framework (October 2004):

Dimension: HWB7 Interventions and treatments

SFHR12

Deliver external beam kilovoltage radiation

Developed by	Skills for Health
Version number	1
Date approved	June 2010
Indicative review date	June 2012
Validity	Current
Status	Original
Originating organisation	Skills for Health
Original URN	R12
Relevant occupations	Health, Public Services and Care; Healthcare and Related Personal Services
Suite	Radiotherapy
Key words	external, beam, radiation, radiotherapy