SFHR8
Check parameters for innovative plans and reconcile inconsistencies in standard plan checks

Overview

This standard is concerned with the checking of treatment parameters, which may include isodose distributions, for individual patients, this applies to the use of megavoltage, orthovoltage, superficial x-rays, electrons and brachytherapy (sealed sources). Standard plans may sometimes fail plan checks and need to be reconciled. The dosimetric aspects of an innovative plan must be checked by an independent physicist authorised by a Medical Physics Expert.

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

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Performance criteria

You must be able to:

P1 assess the appropriateness of a treatment plan for the type, grade and stage of tumour
P2 seek advice and knowledge from other experts to contribute to an informed decision where level of complexity required exceeds your personal level of competence
P3 ensure that treatment plan meets departmental standards and guidance
P4 identify errors in treatment plans associated with operator error or computer errors
P5 maintain an appropriate record of problems found so that recurrent problems can be identified and addressed
P6 identify potential and actual problems of the deliverability of treatment plans
P7 check accuracy of calculations
P8 check validity, currency and authenticity of data tables being used
P9 check integrity and validity of patient related data including images
P10 include full consideration of patient mobility, movement and condition
P11 identify which algorithms and corrections have been used and ensure that they are appropriate
P12 initiate the appropriate course of action when an error is identified
P13 obtain acceptance and approval of the plan including discussion of the potential for improvement of a treatment plan with clinical oncologists
P14 identify alternative means of checking where appropriate
P15 document decisions made and actions instigated
P16 together with other experts involved in the plan, assess the levels of risk in clinically using the proposed plan

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Knowledge and understanding

You need to know and understand:

- K1 the roles local protocols for data entry, utilisation, recording and transfer
- K2 the roles local protocols for verifying, validating and signing of treatment plans
- K3 the importance of recognising, and not working beyond, the limitations of your own knowledge and experience
- K4 the roles relevant anatomy and pathology e.g. regional, cross-sectional and functional
- K5 the roles concurrent and malignant disease progression and the potential impact on physiological systems
- K6 the roles tissue tolerances and acceptable treatment dose parameters
- K7 the roles the principles of planning appropriate to the technique which may include:
  - K7.1 acquisition of data and data transfer
  - K7.2 image manipulation and image fusion/registration
  - K7.3 defining the volume
  - K7.4 growing tools
  - K7.5 beam placement using beam's eye view
  - K7.6 plan verification and evaluation using isodose display, dose volume histograms (DVH cumulative and frequency) and digitally reconstructed radiographs (DRR)
  - K7.7 inverse planning
- K8 elements of intensity modulated radiotherapy
- K9 principles of conformal therapy
- K10 principles of arc and rotational therapy
- K11 principles of non-coplanar planning
- K12 fixed focus-surface distance (FSD) v isocentric planning
- K13 coplanar planning in a uniform medium
- K14 isodose distribution in each of the following situations, their uses and critical assessment:
  - K14.1 single field
  - K14.2 isodose summation
  - K14.3 multifield planning
  - K14.4 weighting
- K15 the roles relevant imaging procedures, processing, image manipulation and virtual simulation
- K16 the roles treatment planning models and their limitations
- K17 the roles the impact of treatment parameters, or changes to treatment parameters, on dose distribution
- K18 the roles data required for treatment planning
- K19 the roles derivation of calculation data and charts

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K20 the roles local dose calculations methods
K21 the roles computerised radiotherapy planning systems
K22 the roles the efficiency and efficacy of local treatment and planning protocols
K23 the roles patient contour information (uniplanar, multiplanar) for planning
K24 the roles transposition of patient data including:
- K24.1 magnification
- K24.2 target volumes
- K24.3 sensitive structures
- K24.4 close modifying structures

K25 the roles the principles of tissue compensation
K26 the roles surface obliquity and its effect on the treatment plan
K27 the roles inhomogeneous media and its effect on the treatment plan
K28 the roles volume definition (various methods including - International Commission on Radiation Units and Measurements[ICRU] 50 Prescribing, recording and reporting Photon Beam Therapy 1993 and International Commission on Radiation Therapy [Supplement to ICRU 50] 1999)
K29 the roles dose prescription (various methods including - International Commission on Radiation Units and Measurements[ICRU] 50 Prescribing, recording and reporting Photon Beam Therapy 1993 and International Commission on Radiation Therapy [Supplement to ICRU 50] 1999)
K30 the roles simple and complex dose calculations
K31 the roles field matching
K32 the roles the effects and minimisation of patient and organ movement
K33 the roles and responsibilities of other team members
K34 critical appraisal of the isodose treatment plan against relevant planning/patient information

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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

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