Radiotherap-e

e-learning for advanced radiotherapy techniques

Module 2

Intensity Modulated Radiotherapy

1 Fundamentals

- Introduction to IMRT
- Target Volume Definition
- Introduction to Objective Functions
- Gamma Index for Clinicians
- Gamma Index for Physicists

2 Dosimetry

- Mathematics of Optimisation
- Forward Planned IMRT
- Inverse Planned IMRT
- IMRT Reporting and Prescribing
- Practical Aspects of IMRT QA

3 Tumour sites

- Breast Contouring
- Breast IMRT
- Head and Neck
- Paediatric craniospinal RT
- Pelvic & para-aortic nodes
- Prostate

Module 2 comprises 16 sessions divided into three sections. The sections, and the individual sessions within, can be accessed in any order. Each session is written for a specific target audience, which is identified at the start of the session, together with the pre-requisite knowledge for that target audience.

The aim of the module is to provide the core knowledge to underpin the NRIG (National Radiotherapy Implementation Group) national IMRT training programme (www.cancer.nhs.uk/radiotherapy/imrt.htm). The main emphasis is the new concepts and requirements involved in IMRT compared to 3D conformal radiotherapy. As far as possible, the authors have endeavoured to share the lessons learned through experience of the practical implementation of IMRT, particularly pitfalls and topics of uncertainty.

The following assumptions are made:

- All users have knowledge and experience of 3-D conformal radiotherapy commensurate with their peers in their professional group
- This includes:
  - ◊ Cross sectional anatomy (surface and radiological)
  - ◊ Target volumes and critical structures
  - ◊ Dose response data
  - ◊ Beam shaping methodology
  - ◊ Immobilisation techniques
  - ◊ Evaluation of dose distribution and dose volume histograms
  - ◊ Random and systematic errors in radiotherapy treatment
  - ◊ Portal imaging
  - ◊ Quality assurance programmes

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