**Overview of DICOM in General**
- Data format for enhancing connectivity and interoperability.
- Network protocol component (based on TCP/IP) most widely used.
- Also media, workflow, other services (e.g. printing).
- Specific object definitions developed for each modality.

**The DICOM Conformance Statement**
- A means to assess if two implementations can inter-operate
- A document which follows a strict format (see DICOM Part 2)
- A document for implementors, integrators and end-users
- Mandatory for DICOM implementations

**DICOM in Radiotherapy: History**
- Application of DICOM to RT first considered in 1994, to model RT data exchange.
- DICOM WG7 formed in following year.
- RT specific DICOM objects ratified (formerly supp. 11) in 1997 (RT Structure Set, RT Plan, RT Dose, RT Image).
- Treatment Records (formerly supp. 29), added in 1999.
Radiotherapy Objects

Summary

- RT Structure Set: Patient anatomy (ROIs etc.) linked to CT image coordinate system.
- RT Plan: External beam and/or brachytherapy data linked to structure set.
- RT Image: Conical-geometry image (sim film, DRR, portal film, EPID).
- RT Dose: 3D dose matrices, isodoses, DVH's.
- RT Treatment Record (T): Record of treatment delivery session(s).

Radiotherapy Object Relationships

- Patient
  - DICOM
    - RT Image
    - RT Dose
    - RT Structure Set
    - RT Plan
    - RT Treatment Record (T)

RT Devices using DICOM

- CT
- MR
- PET
- RSS
- RSS Portal Imaging
- CT Image
- MR Image
- PET Image
- RSS Image
- Portal Imaging

DICOM RT Current Work

- Maintenance of radiotherapy objects (change proposals, implementation discussions and recommendations).
- Application of DICOM to model workflow in radiotherapy department.