

During the RSNA meeting of 1994, a meeting was held at which a clear need was expressed for standardization of the way radiotherapy data (such as external beam and brachytherapy treatment plans, doses, and images) are transferred from one piece of equipment to another. The importance of such a standard was clear. The cost of developing custom interfaces, especially in radiotherapy departments where multi-vendor installations are common, is high, an expense which must be passed on to the user. Not only are such developments costly, they can be technically difficult, slowing down the progress of integration of the radiotherapy department, and are also safety critical. Although a standard such as DICOM does not eliminate these issues, it can facilitate development of safe, reliable inter-operability.

As a result of the RSNA meeting, an ad-hoc Working Group, later to become Working Group 7 (Radiotherapy Objects) was formed under the auspices of NEMA (National Electrical Manufacturers' Association). Participating members of this group include many manufacturers of radiotherapy equipment, some academics, and also members involved with the IEC.

In 1997, four radiotherapy-specific DICOM objects were ratified: RT Structure Set, RT Plan, RT Dose, and RT Image. In 1999, three additional objects, RT Beams Treatment Record, RT Brachy Treatment Record, and RT Treatment Summary Record, were added to the DICOM standard, along with CD-R support for the storage of all radiotherapy objects.

Working Group 7 is currently involved in the maintenance of the existing radiotherapy objects, and is also developing new parts of the standard that address issues such as workflow in the radiotherapy context. Building on existing an DICOM framework for this problem, this area in particular is critical to the improvement of interoperability, quality of treatment, and productivity for radiation therapy.

This presentation gives an overview of the current status of the standard as it applies to radiation therapy, and introduces new areas that will be developed in more detail by following presentations.