

INTEGRATING THE HEALTHCARE ENTERPRISE – RADIATION ONCOLOGY (IHE-RO)

Clinical Impact Statement

Treatment Planning – Plan Content (TPPC)

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Description:

This profile describes the RT Plan content exchanged between Treatment Planning Systems (TPS) and Treatment Management Systems (TMS) or other TPSs. The purpose for this profile is to ensure accurate and automatic transfer of the planning information into the treatment management system for treatment delivery without ambiguity and human data entry or into another TPS for re-calculation or re-planning.

This profile addresses a broad variety of treatment techniques that exist in Radiation Therapy. The Treatment Planning System is responsible to provide all Beam Parameters (including SRS cones, wedges, and other accessories) pertinent to the treatment technique applied for a specific plan. This information must be seamlessly transferred from the TPS to the TMS and from one TPS to another.

Rationale for Profile Creation:

Treatment delivery in modern radiotherapy becomes much more complex, involving the use of intensity modulated beams, variable dose rates, and many treatment accessories. The functionalities in Treatment Planning System (TPS), Treatment Management Systems, and the control systems of the Linear accelerators (Linac) may not always be compatible and synchronized. Treatment parameters may be lost during transfer from the TPS system, to the TMS, and to the control system of the Linac, requiring human intervention to recover and manually enter the lost parameters. The purpose of this profile is to ensure automatic transfer of the planning information into the treatment management system for treatment delivery without ambiguity or human data entry. It also address transfer from one TPS to another to incorporate previous radiation treatment for patients requiring retreatment or treatments with multiple treatment modalities, such as combining external beam radiation with brachy therapy.

Clinical Impact:

1. This profile will ensure the integration among the TPS, TMS, and control system of Linac, as well as between different TPSs.
2. This profile aims to automate data transfer and minimize manual data entry. Thus, this profile is essential for the safety and quality of radiation treatment delivery.
3. This profile will enable physicists to focus on ensuring plan quality instead of double-checking the integrity of plan parameter transferring due to possible mistakes caused by missing data and manual data entry.