

# IHE RO Profile Overview

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IHE RO Technical Committee Co-Chairman

# Disclosures

- No corporate funding
- Travel reimbursement for IHE RO travel

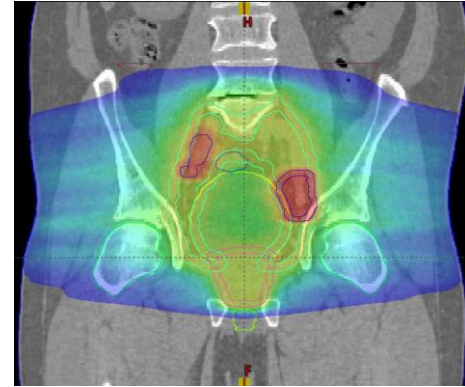
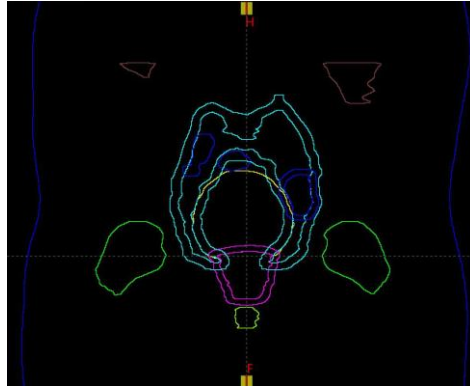


# In Testing!

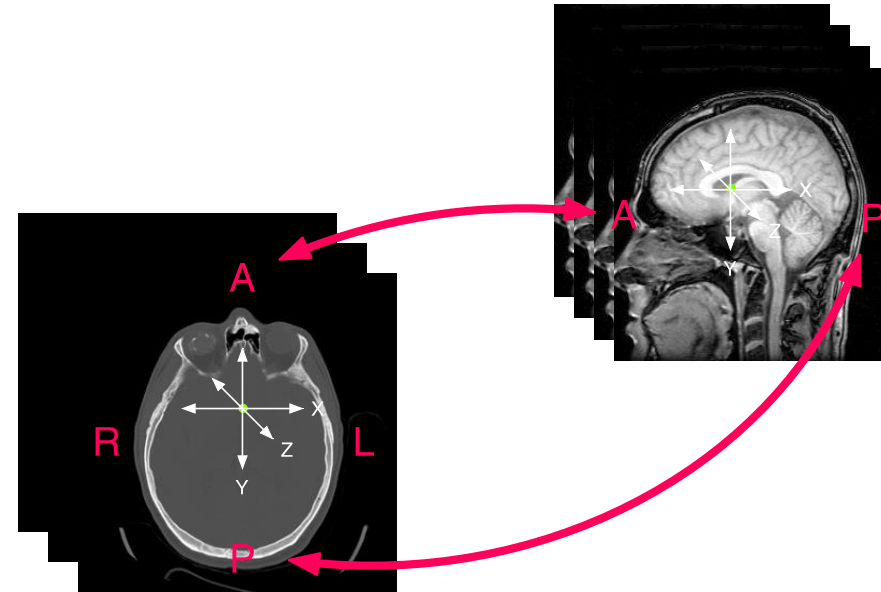
- Treatment Delivery Workflow II - TDW II
  - Treatment Machines Talk to TMSs
- Archive
  - Storage and Retrieval of DICOM RT



- CT, Structures Dose!



- Proper Storage/Retrieval of Images & Registrations from Archive
  - CT, MRI and PET retrieved as DICOM retaining all attributes...
  - Maintains patient orientation
  - Ant $\leftrightarrow$ Ant, Post $\leftrightarrow$ Post, Left $\leftrightarrow$ Left, Right $\leftrightarrow$ Right (feet/head)
  - 6DOF Spatial Registration Object (SRO)

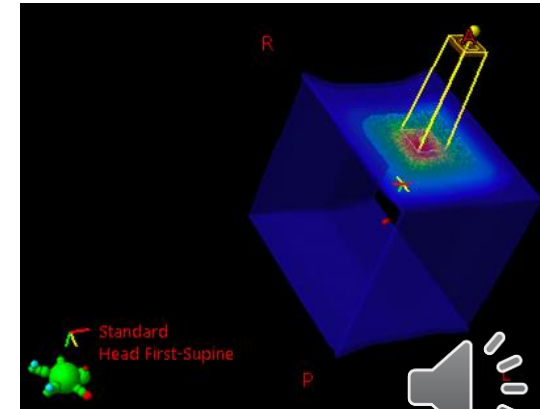
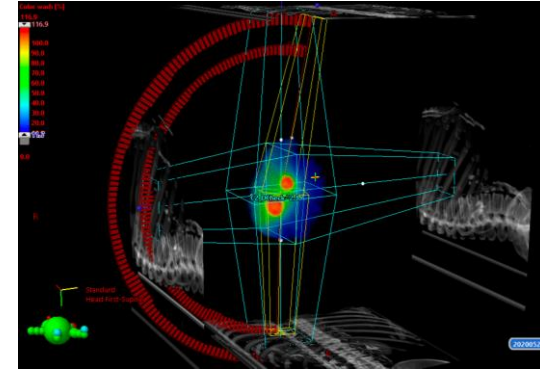


# Multimodality Image Registration II & Deformable Image Alignment

- MMRO Exchange of CT, MRI and Structures with a ...
  - Spatial Registration Object (SRO)
  - DICOM Rigid Transformation
  - Must Display Images fused with Structure set
- DDRO Exchange of CT, MRI and Structures with a ...
  - Deformable Alignment Object
  - DICOM Deformation Map
  - Must Display Images fused with Structure set



- Exchange of C-Arm Gantry Plans
- CT, Structures, Dose and Planned Beams for
  - Basic Static Beam
  - MLC Static Beam
  - Arc Beam
  - MLC Fixed Arc Beams
  - MLC Variable Beams
  - Hard Wedged Beam
  - Virtual Wedge Beam
  - Motor Wedge Beam
  - Static Electron Beam
  - Step & Shoot MLC Beam
  - Sliding Window MLC Beam
  - Photon Applicator Beam
  - Photon Applicator Arc Beam



- Consistent Dose Content for External Beam Radiation – CDEB
  - Improve dose tracking and reporting for Tx plans and records
- Deformable Registration Objects - DRRO
  - Exchange of Images, Structures and Deformation Matrix
- Discrete Positioning and Delivery Workflow - DPDW
  - Multi-Vendor IGRT and Patient Setup
- Query and Retrieve for Radiation Oncology - QRRO
  - Query and Retrieve of DICOM Archive for RO





- Exchange of Radiotherapy Summaries - XRTS
  - Prescription and Treatment Summary Exchange with EMR
- Prescription In Radiation Oncology - RXRO
  - DICOM Prescription Exchange
  - Supports Intent, Prescription and Plan Directive with OAR limits
- Treatment Delivery Plan Content – TDPC
  - RT Plans all the details needed for treatment machines
- Treatment Delivery Image Content - TDIC
  - Exchange of images Acquired during treatment



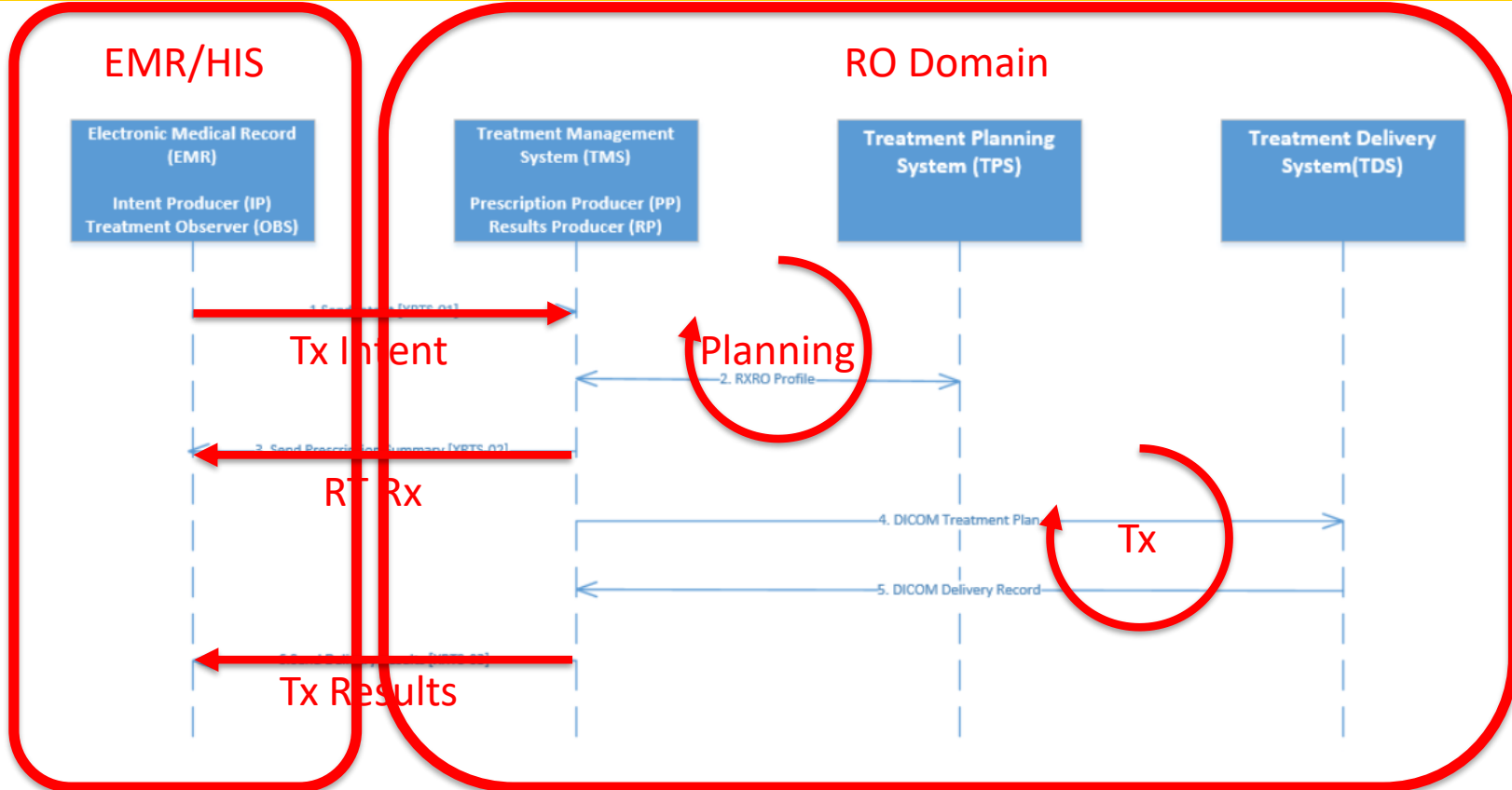
- Treatment Delivery Record Content – TDRC
  - Complete recording on treatment parameters
- Treatment Plan Plan Content -TPPC-Ion (Protons)
  - Exchange of Proton Plans!



# Initial Drafting

- Four D Image Import – FDII
  - Respiratory Correlated Image Import, CT, MRI, PET ...
- Region of Interest Templates – ROIT
  - Exchange of structure templates
  - Waiting on DICOM standard
- Treatment Plan Plan Content Brachy TPPC – Brachy
  - Implementation of new DICOM standard





- **Basic Physician Intent**
  - Treatment Site & Code
  - Diagnosis Code – ICD 10
  - Treatment Intent Type / Therapeutic Goals
  - Narrative – Free Text
    - Staging info & Technique e.g. SBRT, VMAT....?
  - No Dose information
- Enhanced Physician Intent
- Planning Directive



- Basic Physician Intent
- **Enhanced Physician Intent**
  - Target definition e.g. PTV
  - Rx Dose for PTV
    - dose/fx
    - Nfx
    - Total Dose
- Planning Directive



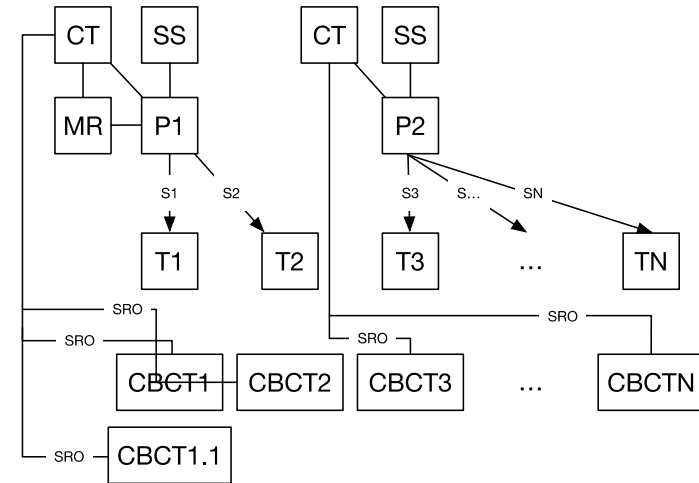
- Basic Physician Intent
- Enhanced Physician Intent
- **Planning Directive**
  - Full details...
  - Rx for all targets
  - Dose limits for all OARs



## 3 Actors

1. Outside Hospital Plan and History Exchange
  - CT, Structures and Dose with Tx Records
  - Continuation or Retreatment situation
2. Clinical Trial Record Exchange
  - CT, Structures and Dose with Tx Records
  - Registered images for Planning
  - Treatment Imaging with IGRT
3. “Archive” Export
  - Document as much as you can.

Single Plan with Revision





# What you can do?

- Ask your vendor about integration and data exchange
- Include Integration Profiles in your RFPs for planning systems, treatment management systems, and delivery systems
- Talk to your Admins & IT about data exchange servers
- Major Hospital Purchases should include money for server and interfaces for data exchange.

