IHE RO Profile Overview

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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
Basic Radiotherapy Objects II (BRTO II)

- 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⇔Ant, Post⇔Post, Left⇔Left, Right⇔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
Treatment Plan Plan Content (TPPC)

- 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
Exchange with EMR/HIS

“XRTS”

EMR/HIS
- Electronic Medical Record (EMR)
  - Intent Producer (IP)
  - Treatment Observer (OBS)

RO Domain
- Treatment Management System (TMS)
  - Prescription Producer (PP)
  - Results Producer (RP)
- Treatment Planning System (TPS)
- Treatment Delivery System (TDS)

Tx Intent

Planning

RT Rx

Tx

Tx Results
- 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.
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.