

**IHE-RO Technical Committee
Conference Call
November 20, 2017
10:30 am – 12:00 pm EST**

**Technical Committee Chairs:
Scott Hadley, PhD, University of Michigan
Chris Pauer, Sun Nuclear**

**IHERO Task Force Co-Chairs
Bruce Curran, MS, ME, FAAPM, FACMP, FACR, AAPM / VCU Health
Bridget Koontz, MD, Duke University**

Mission Statement: *The American Society for Radiology Oncology (ASTRO) has formed a multi-society Task Force to undertake an initiative to promote the Integration of the Healthcare Enterprise (IHE) – Radiation Oncology (RO), fostering seamless connectivity and integration of radiotherapy equipment and the patient health information systems. The Task Force will include members from ASTRO, RSNA, American Association of Physicists in Medicine (AAPM), the American College of Radiology (ACR) and the Medical Imaging and Technology Alliance (MITA). In addition, members of the International community have also been invited to participate in IHE-RO. The IHE-RO Task Force, in close collaboration with radiotherapy product manufacturers, will develop appropriate integration profiles for radiation therapy and setup a demonstration of seamless communication among the full array of radiotherapy products.*

Attendees:

Chris Pauer, Sun Nuclear
Jill Moton, AAPM
Walter Bosch, WashU/ATC
Sven Siekmann, Brainlab
Carolyn Peepall, Mevion
Eric Vinson, Northwest Portland Area Indian Health Board
Scott Hadley, UMich
Stefan Pall Boman, Raysearch
Jim Percy, Elekta
Harold Beunk, ICT
Thomas Schwere, Varian
Rickard Holmberg, Raysearch
Bob Pekarek, Accuray
Howie Richmond, MIM Software
Lei Dong, U.Penn
David Clunie, DICOM

Minutes:

- I. Call to Order at 10:35. A quorum was declared
 - a. Review Agenda
 - b. Review and Approve Minutes – Minutes for July, August, September and October meetings were approved without objection or abstention.

- II. Review Planning Committee Use Case Priorities for Profile Development (lower score is higher priority)

- a. 4D Image Import (Score 3.75) - This use case would define the data elements needed by a TPS to facilitate import and use of respiratory correlated 4D CT and MRI. A TPS would be able to import phases of 4D imaging with enough information to collect the data for a user to plan respiratory motion managed radiotherapy.
 - i. TC candidate
 - ii. This is a content profile
 - iii. Not limited to CT, can also apply to MR, PET. Focused on respiratory motion.
 - iv. Open issue: include cardiac motion? include “quasi-static” motion?

- b. Deformable Registration Objects (DRRO) (Score 3.88) - This profile addresses the need to exchange deformable image registration (DIR) information between different software systems for treatment planning and adaptive therapy.
 - i. TC candidate – some work has been done already
 - ii. How to gain more traction? Need to identify outstanding issues.

- c. RO History Exchange (Score 4.62) – This use case would give senders a path to package up treatment history records that are complete and concise; receivers get a concise package of DICOM that can be imported into planning systems and thoroughly document what the plan was and what was actually delivered. It would provide the vendors with an implementation of history exchange they can rely on to contain all the data elements to document treatment.
 - i. DICOM package for treatment plan that was actually delivered.
 - ii. Use case includes both treatment planning and treatment delivery (record) information. It is relevant to cross-enterprise exchange of treatment planning data for re-treatment, clinical trials, registries.
 - iii. This use case may include both content and workflow. However, i may be prudent to separate these.
 - iv. More analysis is needed to clarify scope, content/workflow.

- d. Brachytherapy (Score 5.5) - This profile addresses the need to transfer brachytherapy plan information from specialized brachytherapy planning systems to TMS or TPS software to facilitate planning of additional radiation treatments.
 - i. Need to evaluate scope and relationship to other IHE-RO profiles
 - ii. Addressing this Use Case with addition (or brachytherapy versions of) the BRTO-II, and TPPC Profiles was mentioned.
 - iii. The broader topic of how to deal with non-C-arm photon therapy plans in DICOM 1st Gen RT was raised.

- e. Multi-Modality Residual Dose Optimization (Score 5.62) - It is difficult to account for previously delivered radiation dose for individual patients when planning a second (or subsequent) treatment with a different vendor’s radiotherapy treatment planning (RTP) system. DICOM (RT objects) in principle should contain the required information and communication protocol to transfer information between different vendor RTP systems. A Multi-Modality Residual Dose Optimization profile could require compliant RTP systems (also Oncology Information Management systems which act as a centralized

- data store) to support the transaction(s). The market interest as represented by the member clinics of the IHE-RO P.C. is high.
- i. The DCOM Profile already provides interoperable communication for Compositing Planner capabilities.
 - ii. Clarification is needed regarding what other capabilities are expected for this Use Case. Some of these may be product features, rather than interoperability issues.
 - iii. TC to push back on development at this time.
- f. Integrated Patient QA Checker (Score 5.75 *tie) - Today many effective patient QA solutions rely on stand-alone systems. Lack of integration of these important QA systems with TPS and TMS systems greatly hinders the reliability and efficiency of the patient specific QA checks and their verification. The lack of integration causes not only a lot of manual work for clinicians but also an increased risk that patient is treated before the required QA checks on the treatment have been successfully completed. Manpower and the lack of reliability of manual entering QA check results to multiple systems also discourage the adoption of these patient QA systems into everyday operations.
- i. This Use Case appears to be essentially the same as the QA Workflow Profile.
 - ii. Consensus of the TC was to combine this Use Case with the QAW Profile.
- g. Quality Assurance Workflow Supplement (QAW) (Score 5.75 *tie) - Using the RT Plan, Planning Images, RT Structure Set and RT Dose (or equivalents) produced by a Quality Assurance Planning Analysis (QAPA) Planning Data Provider (such as a Treatment Planning System) as inputs, the QAPA Planning Analysis Performer assesses the dose that will be delivered to the Structures and Dose References, and Reports on the findings. Results are stored with a QAPA Data Store actor (such as a Treatment Management System, PACS, or EMR). There is also the allowance that a QAPA Planning Session Manager would hold the order for the planning session, and would gather the outputs and progress of the Planning Analysis.
- h. Archive of Radiation Oncology Plan and Treatment (Score 5.88) - This use case would create an IHERO profile that defines data content, storage, and retrieval.
- i. "Time Capsule" use case to "future-proof" storage of treatment planning data.
 - ii. Vendor neutral archiving in a form that will be usable in 20 years.
 - iii. May include 1st to 2nd Gen DICOM re-coding
- i. Query and Retrieve in Radiation Oncology (Score 6.0) - This profile facilitates seamless retrieval of data required at various stages in a radiotherapy planning/delivery process.
- j. Survivorship Care Plan (Score 8.25) - This use case specifically addresses identity and formatting of data items to pass from radonc systems to hospital EMRs to meet the need for a Survivorship Care Plan.
- i. There has been some progress in the RO HIS group on working out the essential information to be sent to an EMR to report on what was treated with RT (HIS Dose Elements).
 - ii. Treatment summary is a minimal subset of treatment plan information (at the level of detail of an RT prescription).
 - iii. Some discussion of staging information.

- iv. The RT dose information is expected to be combined with surgery and medonc information in the Survivorship Care Plan.
- v. IHE-RO expects to focus on HIS Dose Elements exchange and RXRO.

III. Review Other Items

- a. Current work
 - i. RXRO
 - ii. TDRC (nearing public comment)
 - iii. DPDW
 - iv. QRRO
 - v. QAPA and QADA
 - vi. HIS
 - vii. DRRO – early work
 - viii. Brachy – nearing review for public comment
- b. Other potential work
 - i. 2nd Gen RT

IV. Upcoming meetings

- a. Next TC Teleconference – December 18, 2017, 10:30 am – 12:00 pm ET

V. Meeting Adjourned at 12:00pm ET