

**IHE-RO Technical Committee
Face-to-Face with Conference call
May 13, 2013 at 8:30-5:30 PM ET
May 14, 2013 at 8:30-12:00 ET**

**Technical Committee Chairs:
Bruce Curran, MS, ME
Chris Pauer, Accuray**

**IHERO Task Force Co-Chairs
Dick Fraass, Ph.D., FAAPM, FASTRO, FACR
John Buatti, MD**

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.*

Because of reporting of Connectathon results on Monday morning, teleconference will not be available until 1:30 PM on May 13th.

Preliminary Agenda

- May 13
 - 8:30-9:30 Settling and Setup
 - 9:30 Call to Order
 - Approval of Agenda - New items?
 - Approval of minutes from April Teleconference.
 - 10:00 Review of Connectathon Results
 - 11:00 Comments/Feedback on Connectathon process / judging
 - 12:00 Lunch
 - 1:00 Other Updates – News from RT world
 - 1:30 QAPV discussion – Begin Teleconference (Continues through May 14)
 - 3:00 Theory of Operation Document
 - 4:00 Other Profile development / discussion
 - Christof – Q/R profile
 - 4:30 TDW-II
 - 5:30 End of Day
- May 14
 - 8:30 Fall Pre-testing
 - 9:00 Washington University IHE-RO Technical Support
 - 9:30 IEC
 - 10:00 Follow Up
 - Response to Richard Eaton and MDICC Technical Landscape – Chris

- Deformable Registration Profile – Chris
 - Treatment Machine Descriptions – Koua
 - RAD Transactions in CT-Sim profile
- 55 ○ 10:00 Other Agenda Items Not Completed yesterday / New Items
- 11:00 Final Topics – Future meetings – Next Agenda

60

In Attendance

Name	Affiliation	Email	Mon 5/13	Tue 5/14
Bruce Curran	RI Hosp.	bcurran1@lifespan.org	X	X
Chris Pauer	Accuray	cpauer@accuray.com	X	X
Amber Sims	ASTRO	ambers@astro.org	X	X
Walter Bosch	ATC/Wash. U.	bosch@wustl.edu	X	X
Koua Yang	Philips	koua.yang@philips.com	X	X
Sue Reilly	Elekta	sue.reilly@elekta.com	X	-
Uli Busch	Varian	ulrich.busch@varian.com	X	X
Christof Schadt	Brainlab	Christof.schadt@brainlab.com	X	X
Hakan MacLean	RaySearch Labs	Hakan.maclea@raysearchlabs.com	X	X
Pushkar Renade	Varian	Pushkar.ranade@varian.com	X	X
Stefan Boman	RaySearch Labs	Stefan.p.boman@raysearchlabs.com	X	X
Sam Brain	Stanford Univ.		T	
Harold Beunk	ICT		T	
Eli Stevens	Mobius Medical	elis@doselab.com	T	
Dick Fraass			T	
Sasa Mutic	Washington University			T

X = in person T = via teleconference/Webex

65

Minutes

- I. Call to Order 5/13/2013 @ 9:14 am ET – A quorum was declared.
- II. Attendance and Meeting Rules were stated.
- III. Setting of Agenda
 - A. Approval of Agenda – addition of General IHE-RO Process and IHE-RO Profile Review. Approved without objection
 - B. Approval of Minutes from April 18, 2013 Teleconference – Approved without objection.
- IV. Review of Connectathon Results – Bruce reported on 2013 Connectathon Results
 - A. Profiles tested BRTO, MMRO-II, ARTI
 - B. DCOMP, TDW profiles could not be tested (insufficient number of Actors present)
 - C. Issues discussed include
 - i. Fan-in/fan-out in archive testing
 - ii. Display of slice position (coordinates) in Registered Dose Displayer

80

- iii. Resumption of partial delivery of a plan in TDW and use of Treatment Delivery Instruction and RT Plan instances by TDD.
 - iv. Display of Meterset in Treatment Record for resumption of partial delivery
 - D. Supporting actors from Elekta and Philips were recognized as especially valuable for ARTI profile testing.
 - E. The need for scripted evaluation (test tool screening) for profile adherence was highlighted.
 - F. **DECISION:** Submission of Test Tool Results to IHE-RO Test Committee chair:
 - i. **Pre-requisite for release of test results:** Vendors to submit Test Tool results as a condition for release of their Connectathon results.
 - ii. **Pre-requisite for testing:** Test Tool results must be submitted at least one month prior to a Connectathon for Test Tools that are released at least four months prior to the Connectathon. (Note this require Test Tool release by Jan 1 prior to Connectathon.)
 - G. **DECISION:** Connectathon results approved without objection.
 - H. **DECISION:** June 15, 2013 is the deadline for vendor submission of 2013 Test Tool results
 - I. **ACTION:** Chris to make recommendation to TC after feedback from ICT regarding what Tools will be available quickly enough for the June 15 deadline to be met.
 - J. **ACTION:** Bruce to review Test Tool results – failures to adhere to Profile requirements may result in failure of Actors subject to review by the TC.
- V. Domain Pre-Testing, Fall 2013
 - A. Decision regarding location: Brainlab Feldkirchen, Germany
- VI. Comments/Feedback on Connectathon process / judging
 - A. The need to support cloud-based Actor testing has been recognized. ASTRO pledge to provide Internet access in test facilities.
 - B. **ACTION:** Changes to Connectathon registration:
 - i. IT technical requirements to be added to Connectathon Registration Form
 - ii. Connectathon Registration deadline one month prior to Connectathon.
 - iii. Actor registration to be moved to the Wiki
 - C. ARTI Testing
 - i. Discussion of testing efficiency
 - 1. Confusion caused by bad, stale data in archive
 - 2. Suggestion that vendors clean out stale data in the test Archive after storing
 - 3. Suggest “line producer”/”test manager” to improve testing throughput
 - 4. Once passed, can we abbreviate the testing for an Actor?
 - 5. Programmatically judge producer actors? - test tool
 - 6. **ACTION:** IHE-RO Technical Support to create informal “scratch” copy of data per vendor for trial plans. Vendors to keep formal test data clean, and labeled (via Series Description), and one instance per Series for RT objects.
 - 7. **ACTION:** Koua to update the machine characterization document using a with the following treatment machines
 - a. Varian 120: 6x, 15x photons; 9e, 12e electrons (with 6x6, 10x10 applicators); 45, 60 deg wedges; IEC coordinates;
 - b. Elekta Synergy: details TBD

- 135 D. Judge Protocols using “Cookbook” checklists
- i. If detailed... use random sample subset of full set of tests
 - ii. Reserving a day at beginning for judges to get prepared
 - iii. Use time at Pre-Testing to get prepared
 - iv. Outsourcing some work to specific vendors?
- 140 E. Re-use of Test Data from previous years
- i. Re-using data produced in a previous connectathon to test a consumer of that data requires access to another Actor that successfully consumed that same dataset in the previous connectathon.
- F. Profile-Specific Archives
- 145 i. **ACTION:** Christof and Bruce to evaluate implications of removing Archives from IHE-RO Content Profiles
 - ii. Implications for Archive Test procedure?
 - iii. Is it sufficient to require Level II conformance for profile-independent RT Archives.
- 150 G. Discussion of Treatment Planning prior to Connectathon
- i. **ACTION:** Judges to evaluate whether and how datasets can be distributed ahead of the connectathon for pre-planning.
- H. Publication of product idiosyncrasies? – concerns regarding regulatory/legal issues
- 155 VII. QAPV discussion – Begin Teleconference (Continues through May 14)
- A. Review of version 1.13 of QAPV Profile document (dated 2013-05-12).
 - i. The class of RT Plans that a QCP can assess is to be documented in the DICOM Conformance Statement for both dose checker and difference checker QCPs.
 - 160 ii. **ACTION:** Update Dose Reference point attributes for consistency with DICOM CP1138.
 - iii. Testing issues
 - 1. Test primarily the communication between QCP and QCR
 - 2. Use obviously bad plans (e.g., missing MLC, leaf pair missing)
 - 165 3. Also check plans with subtle differences.
- VIII. Theory of Operation Document – Idea for communicating the usefulness of an IHE-RO Profile with clinical individuals
- A. Description
 - B. Why was the Profile created? Clinical Case
 - 170 C. Clinical Impact? E.g., if my TPS adheres to this profile, how will this help me?
 - D. What it doesn’t do? (set realistic expectation)
 - E. First tested?
 - F. Products involved? / Clinical process steps addressed?
- 175 IX. Other Updates
- A. DICOM WG-7 – Uli
 - i. CP 1138 Average Beam Dose Parameters - done
 - ii. CP 1288 templates and codes for QAPV
 - iii. CP 1287 structure codes
 - 180 iv. CP 1289 Note on transitivity of
 - v. CP 1291 Additional derivation codes for dose compositing
 - vi. CP 1292 Cconcept codes for beam delivery instructions
 - vii. CP 1244

- viii. SUP 147 2nd Gen RT – June, Aug WG-6 meetings
- ix. Query/Retrieve – Profile for Q/R in RT
- x. Joint meeting with IEC – geometric definitions, imaging
- xi. Ion sub-group (Stuart Swerdloff) to be reactivated at PTCOG 2013
- xii. Brachy sub-group is working on 1st Gen fixes for brachy
- xiii. Patient positioning sub-group – DPDW Profile, Supp 160
- xiv. Dose reporting (WG28) – Structured Report for CT
- xv. AAPM TG on imaging dose

B. IHE-RO-Japan

- i. Concern expressed to IHE Testing and Tools that IHE-RO-Japan showed “supporting” Actors from two Japanese vendors that have not been tested.

C. Proposal to re-organize the IHE-RO Planning Committee

- i. PC to be driven by clinical physicists and vendor reps
- ii. ASTRO IHE-RO “Oversight Committee” to include physicians

X. Other Profile development / discussion

A. Christof – Q/R profile

- i. To date, IHE-RO has largely ignored the transport of objects in content profiles.
- ii. Q/R is increasingly implemented in RT applications.
- iii. Proposal for Profile(s) to address transport of DICOM RT data objects
 - 1. Query keys for RT objects per SOP Class
 - 2. Instance level Q/R
 - 3. Asynchronous transfer, multiple associations
- iv. **ACTION:** Christof to set up page on the wiki for development of a Q/R Profile

Adjourned for the day 5:25pm 5/13/13

Restart 8:45am 5/14/13

XI. Profile Status Review

- A. **ACTION:** Chris to add domain status to profiles on Wiki.
- B. MMRO-II – Public Comment as of 2/12 – has been voted to Final Text, awaiting inclusion into TF
- C. MMRO-III – currently in draft, list of questions for discussion
- D. DEFR (Deformable Registration) – has been added to the list as a placeholder
- E. ROIT – in development, has been updated per changes in Sup 147 (2/2013)
- F. IPDW – in public comment
- G. TDW – has been voted to Final Text, awaiting inclusion into TF
- H. BRTO
 - i. **DECISION:** Consensus to make the multi-series combination Transaction *OPTIONAL* (no longer seen as an interoperability) **ACTION:** Bruce to draft CP to make Multi-series Retrieval Transaction optional.
 - ii. Observation that BRTO requirement for Referenced Fraction Group Sequence (300C,0020) data element is inconsistent with DICOM standard. **ACTION:** Bruce to draft CP to delete the table entry containing “Referenced Fraction Group Sequence” (300C,0020) in Table 1.3-10 “RT Dose Module”.
- I. Content profile for RT Ion Plan? – awaiting better consensus among ion vendors. Ions are not yet a part of DICOM 2nd Gen RT.

XII. Washington University and IHE-RO Technical Support

- A. Review of deliverables for WU contract
- B. Priorities

- 235 i. Assist in managing the next cycle of Test Tool development (thru 12/2013)
ii. Framework document management (after 6/1/13)
1. ARTI
240 iii. Connectathon
1. scripting
2. support – Kudu / Gazelle
3. documentation
- XIII. IHE-RO Wiki / IHE Wiki
A. Purpose is Connectathon support and Profile development
245 B. Need to update <http://wiki.ihe.net> pages – Amber is awaiting *access* to IHE wiki
i. Schedule
ii. Meeting agenda/minutes
iii. Meeting attendance records (for quorum)
C. **DECISION:** Minutes for meetings following this one to be posted as Wiki pages on ihe-
250 ro.org and exported as PDF to wiki.ihe.net when approved.
D. **ACTION:** Christof to update/test template and work with Walter to implement posting
of minutes.
- XIV. TDW-II
255 A. Includes cleanup and changes to be consist with the 2011 DICOM worklist specification.
(Now references the 2011 DICOM Standard rather than frozen drafts of Supp 74, 96.)
B. Review of profile document to clean up wording.
C. Discussion of section 9.5 TDW-II Security Considerations, including inconsistency in
patient identification, which is to be handled in accord with a vendor's hazard analysis.
260 D. **DECISION:** Consensus that a review of safety issues should be a part of all new
profiles.
E. **DECISION:** Require at least one progress update (> 0) as soon as the TDD has
determined that radiation delivery has started. Clarify location of storage (like IPDW).
- 265 XV. QAPV – RT Plan content needed to support dose calculation
A. **DECISION:** Changes in DICOM specified in CP 1138 to be incorporated in QAPV
Profile with addition of the Beam Dose Verification Control Point Sequence (R+*).
ACTION: Chris to solicit response of QA vendors to this change.
B. **DECISION:** Consensus to incorporate CP 1138 changes and Beam Dose Verification
270 Control Point Sequence (R+*) into the ARTI-II Profile. (Note: this requires revision of
all transactions in ARTI-II.)
- XVI. General IHE-RO Process Discussion
A. Judging at Pre-Testing – issue is test partners
275 B. **ACTION:** To be discussed on next Teleconference
- XVII. Future Meetings
A. ASTRO Sept 22-25, 2013, Atlanta – TC meeting tentatively Sept 26-28, 2013
B. Domain Pre-Testing, Oct 21-26 (Testing) and 28-30 (TC meeting), 2013 in Munich
280 i. Hotel space is available
- XVIII. Adjourned @ 12:00pm 5/14