

**IHE-RO Technical Committee
Face-to-Face
October 12-15, 2014
Oct 12, 13, 15 at 8:30-5:30 PM UTC+01:00
Oct 14 at 9:30-6:30 PM UTC+01:00
Varian, Zug, Switzerland**

**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.*

Attendees:

Name	Affiliation	Email	10/12/14	10/13/14	10/14/14	10/14/14
Chris Pauer	Accuray	cpauer@accuray.com	X	X	X	X
Lakshmi Santanam	Wash Univ.	lsantanam@radonc.wustl.edu	X			
Jim Percy	Elekta	Jim.percy@elekta.com	X	X	X	X
Walter Bosch	Wash. Univ.	bosch@wustl.edu	X	X	X	X
Christof Schadt	Brainlab	Christof.schadt@brainlab.com	X	X	X	
Uli Busch	Varian	Ulrich.busch@varian.com	X	X	X	X
Koua Yang	Philips	koua.yang@philips.com	X	X	X	X
Sven Siekmann	Brainlab	Sven.siekmann@brainlab.com	X	X	X	X
Rickard Holmberg	RaySearch	Rickard.holmberg@raysearchlabs.com	X	X	X	X
Alan Cohen	Accuray				W	
Craig Laughton	Lifeline				W	
Eli Stevens	Mobius				W	
Mark Pepelea	Philips				W	
Scott Hadley	AAPM				W	
Vikren Sarkar	Univ. of Utah				W	
Charles Able	Wake Forest				W	

X = In person W = via Webex (Tuesday 10/14/14, 5:30-6:30pm)

Minutes:

I. Call to Order (10/12/14 at 9:10 am CEST)

- a. Review Agenda – **Approved**
- b. Approval of minutes from September 2014 meeting – **Approved without objection**
- c. Other broad topics to add
- d. Breakouts for advancing certain profiles

II. Business

a. Topic 1: Level Set

i. Updates on IHE-RO activities

1. Co-chair elections – request for nomination has gone out.
2. Planning, Oversight, Steering Committees – no meetings since ASTRO meeting in Sept. Bridget Koontz (Duke) has been elected co-chair of the PC.
3. Domain Committee Meeting – Update on Triage – Chris asked about inquiries from clinicians identifying interoperability issues.
 - a. A triage process is needed to respond to such inputs. (These are mainly support cases.)
 - b. Such input can help to prioritize development of new IHE-RO Profiles via the Planning Committee.
 - c. The IHE-RO can do little on its own. It was suggested that a vendor organization (NEMA) should play a central role in multi-vendor interoperability issues.

4. Other Updates

ii. ASTRO, DICOM, MITA, ROSSI (short time since last meeting)

1. WG-07 to meet in Nov. Supplement for QAPV QA Report IOD is in preparation.
2. The RT-2 standard has been released for comment by NEMA. **ACTION 141001**: IHE-RO to discuss NEMA RT-2 on teleconference after it is released for Public Comment.
3. Machine Characterization (NEMA RT-3 standard) group continues to meet.

b. Topic 2: Connectathon Fall 2014

i. Findings – Findings were presented by Walter. Approved without objection.

ii. Process Changes / Issues –

1. Distributing test datasets prior to the Connectathon was beneficial. This approach is to be used for future testing.
2. Issues noted in testing
 - a. Plan consumers did not have all treatment machines configured. (Producers appear to have used standard configurations.)
 - b. Ihe-ro.org Machine Configuration needs to be updated: Source-Tray distance, Block transmission, Wedge transmission, rename Virtual wedge for VersaHD. Add codes for wedges, electron applicator IDs, electron insert IDs, tray IDs (not used for electrons). **ACTION 141002**: Jim and Bruce to update Machine Configuration page for Jan 1, 2015. Kari J. to review Varian machine definitions.
 - c. Plan producers should be careful to follow instructions for energy, wedge, applicator and other beam modifiers.
 - d. TPPC needs to correct the mandatory parameters for electron beams.
 - e. Motorized wedge issue: Open MU, Wedged MU are primary parameters. (Effective wedge angle attribute requirements to be discussed.)
 - f. Make sure block transmission, tray factor, bolus should be entered.

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- g. SSD definition to be clarified. (To be discussed for TPPC).
 - h. Dose to Beam Dose Specification Point (display tolerance is not defined). Further discussion of BDSP Coordinates.
 - i. Dose Rate Display – under what conditions should Dose Rate be displayed? → Yes, under all conditions.
 - j. Electron Plan is fixed SSD (requires display of SSD). To be discussed re TPPC.
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 - k. Table Top Position requirements are inconsistent (R+) and need clarification/correction. (What does “R+” mean?) To be discussed for TPPC, may have implications for *all* profiles.
 - l. Storage of RT Objects (Series semantics, query/retrieval). Add to agenda a discussion of requirements for # instances / Series for RT objects.
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 - m. In MMRO, two methods are used to display dose on “secondary” images: (1) resample dose into image planes, or (2) resample images into dose planes. To be discussed for MMRO-III.
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- iii. Benefits noted from Connectathon – Participants have been asked to report what was learned (problems corrected, etc.) from the Fall 2014 (or earlier) connectathons. Reports are to be sent to Bruce. **ACTION 141003**: Vendors to send notes regarding benefits from Connectathon to Bruce by Nov 1, 2014. Bruce to edit and report to ASTRO.
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- iv. Experience of Connectathon Participants
 - 1. Start of testing appears to have been delayed until Tuesday morning. Difficulty in knowing who was ready to test. A schedule (subject to available test partners) should be set.
 - 2. Experience with Gazelle was that the effort needed to use it was substantial. The level of granularity of tests was found to be unhelpful.
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 - 3. In-Process spreadsheet (Google Docs shared to participants) was used to track the Actors that were ready to test. This approach will be used for the Spring 2015 Connectathon.
 - 4. Suggestion to use Monday afternoon for informal pre-testing to check data availability, prepare for formal testing starting on Tuesday.
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 - 5. Checklists should be revisited to identify the mandatory parameters and issues / display requirements. **ACTION 141004**: Walter, Bruce and Lakshmi to review checklists.
 - 6. Staffing requirements for formal testing: need to consider retirement/replacement of older profiles with newer versions.
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 - 7. Connectathon online registration forms do not describe which Systems are which Actors (issue for vendors with >1 system for a given Actor). **ACTION 141005**: Chris to work with Crystal to revise online registration (may use other documents for Actor details).
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- v. Request for 2015
 - 1. Request has been submitted to IHE Testing and Tools Committee: IHE-RO Connectathon 2015-1 to be held May 4-8, 2015 at RaySearch Laboratories AB, Sveavagen 44 Stockholm, Sweden
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- vi. Archive Support for 2015 – Brainlab has offered DicomProxy for use at the May 2015 Connectathon.
 - vii. Discussion of dose comparison for ARTI testing. It is meaningful to compare dose distributions from Producer and the re-calculated dose from the Consumer. These will

not, in general, match exactly, but should agree within several percent if the systems have interpreted the beam specifications in a consistent manner.

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- c. Topic 19: TPPC – Christof reviewed the current draft of the TPPC Profile
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- i. Table Top parameters in RT Plan in TPS. These attributes are normally unknown (NULL) in the TPS. However, in the ARTI (and TPPC draft) profile these attributes are R+, i.e., should be treated as a DICOM Type 1 Attribute. **ACTION 141006:** Profile authors to review Type indicator of attribute requirements for their profiles. The Type specification shall strictly follow the definition in the Technical Framework (see Section 2.2), with the addition of Type specifications established during this TC meeting: “D”=Display requirements only, and “-“=Attributes without additional requirements (included for readability).
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- ii. What is the actual Use Case for the Beam Dose at the Beam Dose specification point for a TPS consuming this value?
1. Beam Dose is used to indicate the progress of therapy.
 2. Proposal to make the Beam Dose attribute Type O+/R+ for Consumer/Producer (TPS) Actors R+/- for TMS Actors that do not produce dose.
Notation: <actor> <consumer>/<producer>
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- iii. Add attribute Beam Dose Meaning (300A,008B) as required with a value of BEAM_LEVEL? No, this attribute refers to whether Beam Dose takes into account the dose for a specific beam (BEAM_LEVEL) or a generic “nominal” dose per beam.
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- iv. Feedback during testing: there was confusion in nomenclature between “Conformal Arc” and “MLC Arc”. Suggestion to rename as “MLC Dynamic Arc” and “MLC Static Arc”. More discussion later. **DECISION** (10/13/14) Rename MLC Arc as “MLC Fixed Aperture Arc” and Conformal Arc as “MLC Variable Aperture Arc”.
- v. Change requirement for SSD in Control Point Sequence: R+ (not R+*) when Setup Technique is FIXED_SSD. May need to make requirement dependent on the class of consumer actor.
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- vi. Block Tray ID
1. Block Tray ID is used to identify electron insert, which is checked by the TDD.
 2. General Accessory ID can be used for barcode
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- vii. Number of Blocks for Electrons? Zero or one Aperture Block.
- viii. SSD attribute is R for TMS consumers, O for TPS consumers.
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- ix. Discussion of Beam Dose Usage
1. Beam Dose is the basis for Referenced Dose Reference Seq (300C,0050) in CP sequence. Referenced Dose Reference Number (300C,0051) identifies the Dose Reference Sequence item for which the dose values are specified.
 2. The Dose Reference Sequence (300A,0010) is used to define dose to one or more targets. In this case, Dose Reference Type (300A,0020) has value TARGET.

[Adjourned for the day 10/12/2014 at 5:30pm]

175 [Resume meeting 10/13/2014 at 8:40am]

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- x. Continued discussion of SSD
1. A TMS Actor is required to consume and process this value (R+/-). A Beam Consumer/Producer may consume/update this value and must produce it if Patient Setup Technique (300A,01B0) is FIXED_SSD.
 2. Removed SSD from MLC Static Arc Beam Type.
- xi. Effective Wedge Angle is R+/- for TMS Actors (must consume and process). A Beam Consumer/Producer may consume/update this value and must produce it.

- 185 xii. Beam Delivery Duration Limit (300A,00C5) **ACTION 141007**: Uli and Jim to check on usage of delivery duration limits in their treatment delivery systems, i.e., net (beam-on) versus total delivery times.
- xiii. Fluence Mode ID (300A,0052) is only required if Fluence Mode (300A,0051) is NON_STANDARD.
- 190 xiv. Existing attribute Types in IHE impose constraints on DICOM attributes that are inconsistent with other DICOM requirements. **DECISION**: Use “D” to indicate that an attribute shall be displayed, but that there are no other constraints on its usage. The “<consumer>/<producer>” notation can be used to distinguish requirements for consuming and producing Actors.
- 195 xv. **ACTION 141008**: Chris to author and submit a Change Proposal for the IHE-RO Technical Framework to include the “D” attribute Type requiring Display without other constraints and “-“ (no addition requirements).
- 200 xvi. Discussion of multi-plan management. The RT Plan Relationship (300A,0055) for relating multiple RT Plan instances representing a conceptual treatment could be used. IHE-RO could refine the definition of the CONCURRENT defined term for this attribute. The DICOM Key Object Selection IOD is another option for expressing multi-plan relationships. This remains an open issue.
- 205 xvii. Mixed treatment modalities with multiple isocenters (Multi-Prescription plans). **DECISION**: All beams of an RT Plan Instance must be delivered on the same (TDD) equipment. **ACTION 141025**: add requirement that Treatment Machine Name (300A,00B2) be constant for all beams in TPPC.
- d. Topic 11: Dose Tracking Modules in Content Profile (CDEB) – Chris reviewed a draft of the Consistent Dose Content for External Beam Radiation (CDEB) Profile
- 210 i. The purpose of CDEB is dose tracking. Other use cases, e.g., prescription and plan evaluation, are out of scope.
- ii. CDEB is being structured as a content profile. Interaction diagrams are not needed since there are only two Actors. Chapter 7 (DICOM Content) of the Technical Framework will contain an IOD Module table and IOD Attribute constraints. DICOM Modules to be included for CDEB are the following:
- 215 1. RT Prescription Module – Prescription is out of scope for the CDEB profile. The required functionality is not supported by 1st Gen DICOM RT objects
2. RT Fraction Scheme Module – Beam Dose Specification Point is not needed
3. RT Beams Module – Must be present for all dose references in the RT Prescription Module of Dose Reference Type TARGET. Other dose references
- 220 may be present.
4. Calculated Dose Reference Module
- iii. Dose Reference Sequence and attributes were reviewed.
- iv. Dose tracking support for multiple targets is an open issue.
- 225 v. **ACTION 141009**: Chris to clean up issues in CDEB Profile draft.
- e. Topic 3 BRTO – Handling contours that are not tied to an image plane
- 230 i. Sven reviewed an IHE CP with two new optional transactions for handling additional contours that are not tied to an image plane: High-Resolution Structure Set Storage [RO-XX] and High-Resolution Structure Set Retrieval [RO-XY].
- ii. Required attributes for the ROI Contour Module
1. Contour Number (3006,0048) – RC+ Present if Contour Geometry Type is CLOSED_PLANAR

2. Attached Contours (3006,0049) – RC+ Present if Contour Geometry Type is CLOSED_PLANAR and there are other contours referenced. Multiplicity equals the number of contours referenced from this contour.

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- iii. Attached Contours (3006,0049) shall reference the nearest, directly-connected contours with a lower Contour Number (3006,0048).
- iv. Any two non-disjoint contours will be connected by a path on the undirected graph defined by Attached Contour references. If the ROI path passes through an image plane, there must be a contour on that plane. All contours shall be parallel to the image plane.
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- v. **ACTION 141010**: Sven to draft a figure to illustrate the use of Attached Contours for High Resolution Structure Set Storage.
- vi. A DICOM facility for indicating the use of High-Resolution contours in RT Structure Sets (“Sub-Modality” attribute) was discussed. Such an attribute may be considered by DICOM WG-7.
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- vii. Open Issues:
1. What viewing requirements should be specified in the Profile for High-Res consumers?
 2. Is there a down-sampling use case for receiving low-resolution contours (without connectivity) from high-resolution contour data?
- viii. DICOM CP 1398 permits the use of the Frame of Reference Module in the RT Structure Set. This CP is currently in Letter Ballot. It was proposed to incorporate the usage in this CP in the RT Structure Set, i.e., make Frame of Reference mandatory. It was noted that this change may break some applications that do not expect to receive the Frame of Reference Module. The proposal was tabled pending outcome of the Letter Ballot of CP1398. **ACTION 141011**: Vendors to test their applications to see if addition of the Frame of Reference UID and Position Reference Indicator at the top level of the RT Structure Set will break their applications.
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- ix. DICOM CP 1314 adds the Segmented Property Category Code Sequence (0062,0003) to the RT Structure Set.
- x. DICOM CP 1395 adds recommended CIELab and Grayscale values for ROIs in RT Structure Set. These values should be preserved in anticipation of using Segment Annotation IODs
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[Adjourn for the day 10/13/14 at 5:30pm]
[Resume meeting 10/14/2014 at 8:40am]

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- f. Topic 8: MMRO-III – Christof reviewed Open Issues and Questions provided by Bruce.
- i. Question: Should RO-5 (Dose Retrieval) be replaced with a more general/modern one so that dose can be stored in any of the FoRs present in an application (FoR of CT, MR, ...)? This would also allow updating of updating of RO-5 to DICOM 2007, or we could CP BRTO to move it to DICOM 2011?
 1. The scope of MMRO-III is image registration for treatment planning and plan, i.e., dose review.
 2. MMRO-III removes the constraint that the primary image be CT.
 3. What constraints are needed regarding the FoR of an RT Dose? **DECISION**: The RT Dose shall always share the Frame of Reference of the related RT Plan. (Spatial Registration Retrieval Transaction [MMRO-II-2] will be updated to [MMRO-III-2].)
 4. **ACTION 141012**: Walter to update DCOM Transaction from Utilize Spatial Registration [RO-13] to Spatial Registration Retrieval [MMRO-III-2].
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- 285 5. Open Issue regarding Dose plane orientation: Should the orthogonal constraint (+/-1, 0, 0, 0 +/-1, 0) on Image Orientation (Patient) be retained for RT Dose? This is the current status. It will be left as an open issue as MMRO-III goes to Public Comment.
- 290 6. Is there a limitation on registration of image orientations, e.g., axial with sagittal? → NO.
7. Should drawing be required on the *original* secondary images, rather than on those resampled on the primary FoR? → No. The profile requires that applications support contouring on either primary or secondary images (may be resampled into planes of the primary image).
- 295 8. Do we want to include a dose calculation actor in the profile? All current dose calculation requires axial orientations of the dose planes. Should we allow non-orthogonal dose planes for Gyn applicators and MR image planes? → Not at this time. Should be addressed when the content and workflow profiles are written.
- 300 9. Should registration input information (Fiducials, Segmentations) be included in this profile? Not in the current scope of this profile.
10. **ACTION 141013**: Chris to add issue in DPDW Profile draft to flag transaction [DPDW-211] to address other input objects for registration (fiducials, segmentations).
- 305 11. **ACTION 141014**: Chris to add a Backlog section and/or document on ihe-ro.org
12. Should the Modality Images Stored [RAD 4.8] and Creator Images Stored [RAD 4.18] transactions be replaced with transactions that better match the semantics of the MMRO-III Profile? There appear to be requirements of the RAD profiles that are not satisfied by RO applications. These transactions are also used in other IHE-RO profiles (BRTO, DCOM). → Replacing these transactions is not a priority at this time.
- 310 ii. The **MMRO-III Profile was voted to Public Comment** without objection. **ACTION 141015**: Christof to prepare a clean version of the profile for public comment with one open issue (dose plane orthogonality).
- 315 iii. MMRO (Final Text) is deprecated as of Feb 2012. MMRO-II (Final Text as of Feb 2012) is expected to be deprecated when MMRO-III is voted to Trial Implementation. MMRO-III content will be incorporated into the IHE-RO TF when it goes to Final Text.

320 g. Topic 8.5: Online Archive Discussion

- 325 i. A cloud-based DICOM storage application/service (Qentry) was presented as a possible mechanism for exchanging (and viewing) DICOM data for IHE-RO testing.
- 330 ii. Access to data is defined by role in a “care team”.
- iii. DICOM Storage and Query/Retrieve are supported by a small downloadable application.
- iv. Comments can be added (tracked by user) and screen captures can be uploaded to annotate datasets.
- v. Access (subject to configuration) is via free account at qentry.com. IHE-RO TC members are encouraged to create user accounts and evaluate this tool (subject to availability of publicly distributable data). Brainlab will need to provide written permission for use by other vendors’ personnel.
- vi. Per Christof, IHE-RO TC members have permission to register as Qentry users and may use it exclusively for IHE-RO. They should register as follows:
1. Use company email

- 335 2. Append the word “Connectathon” to their job position.
- vii. **ACTION 141016**: Walter to work with ASTRO regarding the necessary legal agreements for use of this system.
- h. Topic 6.5: TDW shortcomings and actions
- 340 i. Not all aspects of the TDW Profile have been tested. E.g., more testing of the Beam Delivery Instruction is needed.
1. Beam Delivery Instruction – does the TDD respect the *content* of the BDI?
 2. Dose reporting specification is inadequate in the Profile.
 3. Plan import and display of dose references
- 345 ii. Need to perform more rigorous testing of TDW. More thorough testing may result in failing systems that had passed earlier.
- iii. **DECISION**: Consensus of the TC was to retire the TDW Profile after 2015 and revise TDW-II Profile to include (a) explicit handling of the Beams Delivery Instruction and (b) a reference to the Consistent Dose for External Beam content profile. IPDW should also be updated with respect to (a) and (b).
- 350 iv. **ACTION 141017**: Chris to contact IHE (Mary Jungers) regard deprecating TDW.
- i. Topic 7:ICT Test Tools
- i. More active project management is needed for Test Tool development. Vendors also need to be engaged.
- 355 1. **ACTION 141018**: Chris to request that ICT report on monthly IHE-RO teleconferences and be available (at least by phone) for face-to-face meetings.
2. **ACTION 141019**: Chris to collect and forward outstanding issues with Test Tools to ICT and setup a teleconference for ICT response.
- 360 3. **ACTION 141020**: Chris to request that the ICT distribute source to IHE-RO TC, e.g. via git. This facility includes an issue tracker. (JIRA does not appear to be suitable for this purpose.)
- ii. The priority for Test Tool development should now be on object *content* and on *validation* of Test Tools. How are Test Tools validated?
- 365 iii. Should test tools be made publicly available? (Not discussed on Tuesday.)
- j. Topic 5: Prescription Profile
- i. Contact was initiated to Bridget. Any updates? Next steps?
- ii. Bruce reported no information back from Bridget as of this week.
- 370 iii. Several Use Cases were mentioned as a starting point for discussion:
1. Physician Intent
 2. Physician Intent + High-level Prescription
 3. Full Prescription
 4. Full Prescription + Segment Annotation References
- 375 iv. DICOM Supp 147 is expected to be voted to Public Comment in Nov 2014. The goal is to develop a draft content profile for discussion at the IHE-RO TC meeting in Jan 2015.
- k. Topic 18: 5:30 - 6:30 Dose Call with QA Vendors
- 380 i. Attending in person: Chris Pauer, Rickard Holmberg, Koua Yang, Sven Siekmann, Uli Busch, Jim Percy, Walter Bosch
- ii. Attending via phone: Alan Cohen (Accuray), Craig Laughton (Lifeline), Eli Stevens (Mobius), Mark Pepelea (Philips), Scott Hadley (AAPM), Vik Sarkar, Charles Able (Wake Forest)

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- iii. Mobius uses the Beam Dose Specification Point and RT Structure Set and does not use the Dose Depth.
 - iv. Lifeline can use either the Beam Dose Specification Point or the explicit dose depth.
 - v. To get from Plan to CT via DICOM, would need the Structure Set
 - vi. If CT is not used, density information would need to come from internal configuration.
 - 390 vii. DICOM CP1138 (2013 standard) adds Average Beam Dose Point Depth, Average Beam Dose Point Equivalent Depth, and Average Beam Dose Point SSD at the Control Point level. Also includes Cumulative Dose Reference Coefficient
 - viii. Mobius only uses Beam Dose Specification Point and Beam Doses. They re-calculate Beam Dose from the Meterset to meet billing requirements of their customers.
 - 395 ix. Beam Dose Specification Points and Beam Dose are not used by Mobius for the QAPV Profile (they re-compute the 3D dose and compare to the dose grid from the RT Dose object).
 - x. Call ended at 6:10pm CEST.

400 i. Topic 12.5: When can we transition from ARTI to TPPC?

- i. **DECISION**: The consensus of the TC is to plan for transition from ARTI to TPPC by Spring 2016.

[Adjourn for the day 10/14/14 at 6:10pm]

[Resume meeting 10/15/2014 at 8:45am]

405 m. Topic 7: ICT Test Tools

- i. Should test tools be made publicly available? (Free) public release of test tools may encourage participation in (paid) formal testing, but is not entirely fair to those who have paid.
- 410 ii. Release of new test tools, e.g., for QAPV, may be used as a promotion tool to spark interest of new participants. This may vary from profile to profile.
- iii. Cost of tools includes vendor time/engagement as well as vendor fees.
- iv. Motion to make ICT test tools freely available immediately upon release was defeated.
- v. The TC must manage the release of non-current versions of Test Tools.
- 415 vi. Motion: Current releases of Test Tools to be withdrawn from public access. Future public releases of Test Tools to be subject to approval by the TC (per Profile).
Approved unanimously.
- 420 vii. **ACTION 141021**: Chris to lock down Test Tools page on ihe-ro.org. (I.e., require "Connectathon" password.) ICT will need to be notified.

420 n. Topic 16.5: Storage of RT Objects... how many instances per series?

- i. Use of Query/Retrieve and lack of instance-level retrieval in generic PACS is a practical consideration that suggests the use of one instance per Series with Series Description for annotation.
- 425 ii. There are no explicit or implicit semantics of Study and Series (beyond modality) for RT objects in the DICOM standard.
- iii. Use of Archives that support retrieval of individual instances for IHE-RO testing makes this a non-issue.
- 430 iv. Grouping of RT Beam Dose instances in a Series was given as an example of logical grouping. However, it is inappropriate to rely on Study or Series organization to denote any other semantics.

o. Topic 17: QAPV Supplement

- 435 i. Chris reviewed RT Plan attribute requirements for Quality Check evaluation in draft 1.19 of QAPV based on responses from QA Vendors on the 10/14/14 call.
1. Required RT Plan elements for Quality Check Requester: Beam Dose Specification Point, Beam Dose, Beam Dose Verification Control Point Sequence (includes Average Beam Dose Point Depth, Average Beam Dose Point Equivalent Depth, Average Beam Dose Point SSD), Beam Meterset.
 2. Primary Fluence Mode Sequence must be present.
 3. The Referenced Dose Reference Sequence must be present and must include dose reference information for all targets. Other dose references may be present.
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- 445 p. Topic 6:Restructuring Technical Framework – no update at this meeting.
- q. Radiation Oncology Workflow Exchange with HIS (RO-HIS)
- 450 i. Rishabh has accepted nomination as chair of RO-HIS WG with proposal to include IMPAC, Aria, EPIC, Cerner, etc. users to identify scope, i.e., what should be transferred between a HIS and RO-EMR.
 - ii. **ACTION 141022**: Chris to reply to Rishabh with affirmation of TC.
- r. Topic 4: Consistent Patient Identification in RO (CPRO)
- 455 i. Rishabh is chair of this WG
- s. Topic15:Brachytherapy Profile Discussion – the TC is waiting for the DICOM WG-7 Brachytherapy subgroup to write a Supplement proposal
- 460 t. Topic 16:Ion Profile Discussion – the TC is waiting for the DICOM WG-7 Ion Therapy subgroup to write a Supplement proposal
- u. Topic 5: Prescription Profile (further discussion)
- 465 i. **ACTION 141023**: Sven to check on ICRU report numbers “(50/62/8083)” referenced in the RXRO Clinical Impact Statement.
 - ii. Discussion of Use Cases
 1. Transfer of Treatment Intention
 2. Transfer of Simple Prescription
 3. Transfer of Intermediate Prescription
 4. Transfer of Detailed Prescription
 - 470 5. Transfer of Detailed Prescription and Segmentations
 - iii. The relationship between these prescription Use Cases and prescription levels defined in ICRU Report 83 is an open question.
 - iv. More input is needed from the IHE-RO Clinical Advisory Subcommittee to define clinical prescription workflows and the information needed to support them.
 - 475 v. **ACTION 141024**: Chris to follow up on Bruce’s email to Bridget Koontz including the Prescription Use Cases outlined by the TC.
- v. BRTO Resampled Images
- 480 i. **ACTION 141026**: Uli to draft a CP for BRTO to address preservation of the original equipment information for resampled images and combined Series.

- 485 III. Future Meetings
- a. IHE-RO Meetings
 - i. IHE-RO Development Meeting – Jan 19-23, 2015 in Newport Beach or San Diego
 - ii. IHE-RO EU Connectathon – May 4-8, 2015 TC Mtg, May10-13, 2015 in Stockholm (RaySearch Labs)
 - 490 iii. IHE-RO NA Connectathon – Sep 21-25, 2015, TC Mtg Sep 27-30, 2015, preferred location is Washington, DC, alternate is Melbourne, FL.
 - iv. IHE-RO Meeting at ASTRO – Oct 21-24, 2015 in San Antonio, TX

 - b. Other meetings through 2015
 - 495 i. DICOM WG-7 Nov 3-7, 2014 in Washington, DC
 - ii. AAPM July 12-17, 2015 in Anaheim, CA
 - iii. DICOM WG-7 Mar 16-20, 2015 location TBD
 - iv. DICOM WG-7 Jul 15-18 in Anaheim, CA
 - v. DICOM WG-7 Nov 2-6, 2015 location TBD
 - 500 vi. IHE European Connectathon, Apr 20-24, 2015 in Luxemburg
 - vii. World Congress on Medical Physics and Biomedical Engineering, Jun 7-12, 2015, Toronto
 - viii. ESTRO Forum Apr 24-28, 2015 in Barcelona – GEC meeting?
 - 505 ix. PTCOG May 18-23, 2015 in San Diego, CA

IV. Adjournment at 4:05pm CEST 10/15/14