IHE-RO Technical Committee
Face-to-Face
Oct 10-13, 2022 8:30-17:30 ET
Oct 14 8:30-12:00 ET

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Technical Committee Chairs:
Scott Hadley, PhD
Jon Treffert

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Mission Statement: *The American Association of Physicists in Medicine (AAPM) sponsors a multi-society Task Force to undertake an initiative to promote the Integration of the Healthcare Enterprise (IHE) – Radiation Oncology (RO. Originally formed by the American Society for Radiation Oncology (ASTRO), it fosters seamless connectivity and integration of radiotherapy equipment and the patient health information systems. The Technical Committee of IHE-RO will undertake use cases defined by 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	10/10	10/11	10/12	10/13	10/14
Scott Hadley	U. Mich.	swhadley@umich.edu	I	I	I	I	I
Jon Treffert	Raysearch Labs	Jon.treffert@raysearchlabs.com	I	I	I	I	I
Jill Moton	AAPM	Jill@aapm.org	I	I	I	I	I
Walter Bosch	Wash. Univ.	wbosch@wustl.edu	I	I	I	I	I
Bruce Curran	AAPM / VCU	bhcurran@gmail.com	Z	Z	Z		Z
Jim Percy	Elekta	Jim.percy@elekta.com		I	I	I	I
Bruce Rakes	Mevion	rbrakes@mevion.com	I	I	I	I	I
Harold Beunk	Demcon	aapm@beunk.eu	Z	Z	Z	Z	Z
Bob Pekarek	Accuray	bpekarek@accuray.com	I	I	I	I	I
Stefan Pall Boman	Raysearch Labs	Stefan.p.boman@raysearchlabs.com		Z	Z		
Sanjay Bari	Elekta	Sanjay.Bari@elekta.com	Z	Z	Z	Z	Z
David Wikler	IBA	David.Wikler@iba-group.com	I	I	I		
Thomas Schwere	Varian	Thomas.Schwere@varian.com	Z				
Christof Schadt	Brainlab		Z		Z	Z	
Marcus Bergman	Raysearch Labs		Z	Z	Z		
Andreas Lindstrom	Raysearch Labs		Z				
Tucker Meyers	EPIC		Z		Z		
Julia Ginzburg	P-Cure		Z				
Christoph Winter-Emden	BEC		Z				
Rishabh Kapoor	VCU/VHA	Rishabh.kapoor@va.gov	Z		Z		
Charles Parisot	IHE			Z			
Steve Nichols	GE Healthcare			Z			
Niek Schreuder	Leo Cancer Care			Z			
Rock Mackie	Leo Cancer Care			Z			
Brent	Leo Cancer Care			Z			
Kristjan Anderle	CosiLab			Z			
Mary Feng	UCSF			Z			
Emily Hirata	UCSF			Z			
Roland Waser	Varian			Z			
Bjorn Hardemark	Raysearch Labs			Z			
Martin von Siebenthal	Varian				Z		
Richard Vögele	Brainlab					Z	
Svenja Luengen	Brainlab					Z	
Chris Pauer	Sun Nuclear					Z	
Koua Yang	Voximetry					Z	

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I = In person, Z = Zoom

Minutes

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I   Call to Order at 8:34am 10/10/2022.

II Meeting Scope
    A) Review Agenda
35   B) Minutes of the Sept 15, 2022 TC Meeting were reviewed and approved without objection.

III Topic 1 Vendor Input – Interoperability Needs
    A) P-Cure http://www.p-cure.com/ (Julia Ginzburg)
       1) P-Cure provides a chair-based positioning system for proton therapy. Communication between TSM and
40   Patient Positioning System is implemented using DICOM UPS as well as DDS (Data Distribution
          Service), a UDP-based messaging protocol. Current needs are being met with current standards.
    B) BEC Medical Robotics https://www.b-e-c.de/us/medical (Christoph Winter-Emden)
       1) BEC GmbH supports positioning applications. Some concern with the difficulty in implementing
         DICOM. Search for less "heavy" alternatives for positioning.
45   C) Discussion
       1) There is currently no public standard for near-real-time device positioning control.
       2) Positioning devices may or may not need to be patient-aware (and target-aware). This is application-
         specific and depends on system architecture.
       3) Further discussion regarding the scope of potential IHE-RO efforts in (near) real-time positioning control.
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IV Topic 2 FHIR White Paper
    A) Thomas Schwere presented a white paper describing the use of FHIR to drive a Treatment Session in DPDW
       (see "IHE_RO_White_Paper_DPDW_and_FHIR_Rev0-2.docx" in Box folder "Meetings/F-F 10.10.2022").
       1) The white paper includes an overview of DPDW Profiles and Actors. The TMS retrieves UPS from a
55   Worklist Server and creates subsidiary UPSs to drive individual imaging, positioning, verification devices.
       2) FHIR vs DICOM section outlines benefits of using FHIR for workflow management of treatment delivery
         and limitations of DICOM (Unified) Worklist. Discussion of what RT use case(s) would benefit from use
         of FHIR. It is proposed to use FHIR for workflow and DICOM for (persistent) content, e.g., CT Images,
         RT Plan, etc.
60   3) The FHIR workflow model includes Request, Event, and Definition Resource types.
       4) FHIRcast provides near real-time synchronization of healthcare applications.
       5) A Treatment Session consists of two phases: Specification and Performance. The Logical Domain Model
         for Specification Phase includes Patient, Appointment, TreatmentSession, InstructionXYZ Resources. In
         Performance Phase, Service Requests are turned into Tasks.
65   B) Input for later workflow discussions
       1) Review of VTI (Varian Treatment Interface)
         (a) VTI implements TDW workflow using FHIR to communicate between TMS (server) and TDD
           (client).
         (b) VTI uses a FHIR Service Request with private extensions for pointers to RT DICOM objects. Setup
70   imaging is handled with RT Plan.
         (c) Currently there is one client (Varian) and one server (Raysearch) implementation.
    C) FHIR vs DICOM - Discussion of how to incorporate the use of FHIR for workflow management.
       1) Existing investment in TDW-II is based on UPS. In what context can the investment in a new technology
         (FHIR) be justified? FHIR workflow management could be used within the treatment room, i.e., between
75   TSM and in-room devices and keep UPS between TMS and TSM.
       2) Possible Use Cases for FHIR workflow
         (a) Online adaptive treatments
         (b) Offline review

80 V Topic 4 Beyond TDW II
    A) Integration of imaging/positioning devices
       1) Discussion of value and cost of introducing a new technology in treatment delivery workflow.

B) Proposal to add a new Use Case to the TDW-II Profile
   1) Define a new Workitem Code and new Transaction(s) to support both setup imaging and treatment delivery in a single work item. General consensus on this approach.

VI Topic 3 TDOR Review for Trial Implementation
   A) Proposal for handling of treatment records where there is no delivery
   B) Thomas Schwere reviewed Revision 1.1 (draft for Trial Implementation). Comments from PC period have been addressed. Open Items include (1) addition of Treatment Session UID, and (2) generic Transaction to use Treatment Delivery in Progress [RO-60]. Other edits include the following:
      1) Rename Transaction to <u>Final</u> Update.
      2) Glossary definition of "Treatment Session" refers to the DICOM definition of this term. Some inconsistency remains between the DICOM definition and its definition in the Profile.
      3) Update Transaction diagram and table.
      4) Renamed Use Case #2 as "Treatment Session not closed on TMS"
   C) Discussion of Treatment Session scope:
      1) Does the patient need to leave treatment room for there to be a new Treatment Session ID? Some difficulty noted in the definition of "room"? This is not a critical issue for Profile workflow definition.
      2) The purpose of Treatment Session UID is to group artifacts related to a single treatment session.
      3) Remove note regarding the scope of Treatment Session UID in 7.5.1.1.4. The scope is defined in the DICOM Standard.
   D) TC members to review TDOR Profile for final decision on Wed 10/12.

[Adjourned for the day 10/10/22 at 5:40pm ET]
[Resume meeting 10/11/22 at 8:35am ET]

VII Topic 5 IHE DICOM Sharazone – Charles Parisot and Steve Nichols
   A) Sharazone is intended to address a gap in interoperability testing.
   B) Repository of standardized objects tested with a broad number of consuming products.
   C) Managed by IHE Europe for IHE International.
   D) Addresses logistical and legal non-disclosure concerns.
   E) Safe, neutral testing environment. Source Product submits DICOM objects and test suite
      1) Available to all Sharazone participants.
      2) Continuous interoperability testing, available 24/7
      3) Products are commercial or open source, released or planned to be released.
      4) Focused on content: complements, but does not replace IHE Connectathon
   F) Creator submits test item + test suite; downloaded by Consumer; Consumer executes test and uploads test report; Creator reviews test report. (chat dialog between creator and consumer).
   G) Modified Gazelle platform serves as infrastructure.
   H) Annual participation fee. (want service to be sustainable). Unlimited Products, Versions, Testing.
   I) Fees are tiers based on #FTE; different fees for creators and consumers.
   J) Currently there are 10 founding members.
   K) Goal is to make Sharazone sustainable (currently ~60%)
   L) Could share Connectathon data objects using Sharazone.
   M) Membership for Standards Development Organizations is being considered. Pricing TBD. Overlap noted with IHE-RO testing infrastructure. Some interest expressed in following up.
   N) A copy of the presentation is to be shared with the TC.

VIII Topic 1 Vendor Interoperability Needs
   A) Leo Cancer Care presentation by Niek Schreuder and Rock Mackie.
      1) Patient positioning system with patient in seated or semi-upright position; includes upright axial CT scanner and proton/photon beam. Fixation device and 6 DOF positioner.
      2) CT images are in DICOM (patient) coordinate system with Patient Position = SITTING (same as HFS coordinates). Treatment machine (Patient Support Type = CHAIR) has rotated coordinate system.
      3) Discussion regarding handling of CT data and machine coordinates
      4) <mark>ACTION 221001</mark>: Jon to follow up with Niek Schreuder.
   B) Online Adaptation – Kristjan Anderle

1) Cosylab is interacting with numerous vendors and academic centers, including nuclear fusion centers. They are interested in participating in development of an online adaptive profile. Can provide input regarding adaptive use case.
2) Cosylab is a key participant in the RAPTOR (real-time adaptive particle therapy of cancer) consortium see https://raptor-consortium.com
3) They are currently using TDW-II.
4) ACTION 221002: Jill to invite Kristjan Anderle to 12/15/22 TC call.

IX Topic 5.5 TDRC-Ion
   A) TDRC-Ion Profile Rev. 0.8 (2022-07-14) was reviewed and revised.
      1) Discussion of linkage to verification images in RT Ion Beams Treatment Record. RT Image records the position at image acquisition, but not the position at treatment.
      2) Gantry Angle is specified for the *treatment machine*, not the imaging machine.
      3) Setup Beam must be present if ion beam imaging is used for setup, may be present otherwise.
      4) Radiation Type for a beam shall be PROTON or ION only if proton or ion beam was delivered for that beam.
   B) Revisions to be taken back to the Ion subgroup for final review before for public comment.

X Topic 4 Beyond TDW II cont.
   A) TDW-II Evolution – presentation by David Wikler
      1) TDW-II is about the performance of a treatment session
        (a) Options for scheduling complex procedures: (i) Multiple workitems, or (ii) Single workitem that implicitly represents a sequence of workitems.
        (b) What is the meaning of progress for these options?
      2) Discussion of where imaging information (reference images, structure set, spatial registrations) is to be stored and how these instances are to be referenced.
   B) New Profile (or extension of TDW-II) to schedule/deliver of a treatment session, including imaging, position, and delivery

XI Topic 6 Planning Committee Feedback Guidance
   A) PC Review of IHE-RO Profiles Jan-Sept 2022 (Mary Feng)
      1) HIS/XRTS – informal testing scheduled for Dec 2022
      2) DPDW/IPDW/TDW-II – offline recording, online adaptation (larger discussion), IGRT, FHIR integration?
      3) TDIC (offline review) – MR images, IGRT instructions (setup notes) sent to machine, dose accumulation
      4) DRRO – identify clinically-oriented use cases to sell to users
      5) ROTH – five use cases, treatment planning & delivery information, export of treatment records
      6) QRRO – (see (B) below)
      7) DCOM – (see (B) below)
   B) Per PC the QRRO, DCOM Profiles are to be "retired", i.e., no further development or testing.
   C) ACTION 221007: Jim to mark QRRO and DCOM as retired on the ihe-ro.org wiki

XII Topic 4 Beyond TDW II cont.
   A) Further discussion of UPS for TDW-II
      1) Once a UPS has been placed IN_PROGRESS, the only next state is COMPLETE or CANCEL.
      2) Error codes indicate the reason for cancellation. Treatment Record (referenced in the Output Information Sequence) give details.
   B) Use Case(s) for extension of TDW-II to include imaging
      1) Imaging for setup before treatment delivery
      2) Re-positioning during treatment session
   C) How to identify images acquired during a treatment session? E.g., CBCT before and after delivery of a beam.
      1) Timestamps can be used to reconstruct timeline of events during treatment session. Image instances referenced in Output Information Sequence.
   D) ACTION 221003: David Wikler to draft a new treatment workflow Profile (tentatively "TDW-III") on the template of TDW-II:
      1) Create new Workitem codes for Imaging+Delivery and Imaging only
      2) Define Progress parameter.

3) Add requirements for storage of Treatment Record, use of Treatment Session UID
    E) Discussion of the relationship between the existing TDW-II and proposed TDW-III Profiles.
    F) Options for supporting multiple workitem codes
       1) Conditional requirements for Transactions
       2) Split TDD Actor into multiple versions (like TPPC)

    G) Open Issue: Can device-specific requirements for input and output information be managed as *configurations*?

[Adjourned for the day 10/11/22 at 5:25pm ET]
[Resume meeting 10/12/22 at 8:35am ET]

XIII   Topic 8 XRTS Review for Public Comment
    A) Rishabh Kapoor and Martin von Siebenthal reviewed the XRTS Profile with the group. The current version is 0.4.0 (draft in preparation for Public Comment) is in the IHERO TC Share / XRTS folder.
    B) Two informal workshops have been conducted to evaluate the Profile. A third is scheduled for Dec. 5-7, 2022.
    C) The purpose of the Profile is to communicate a summary of radiotherapy treatment technical information from

       a Summary Provider (TMS) to a Treatment Observer (EHR), via an RO Resource Repository (FHIR Server).
    D) The Supplement references the mCODE/CodeX RT FHIR Implementation Guide.
    E) Addressed Issues
       1) Who creates FHIR Resource IDs? The Resource ID is created by the Repository (unique). Business identifiers are provided by the Summary Provider.

       2) Timezone annotation: The provider of data shall include the timezone of the observation. The observer should display in the timezone in which it was created (and explicitly display timezone information).
       3) Updated codes to final SNOMED codes that will be in mCODE 2.0.1 technical correction.
       4) Added more figures and text on the Radiotherapy Data Model in CodeX RT and mCODE.
       5) Review X.5 XRTS Security Considerations section (HTTPS, OAuth). Profile uses SMART on FHIR

       "backend services" model. Authentication and authorization are defined at system level.
    F) Dependencies: FHIR, US Core, mCODE (2.0.1 STU2 Technical Correction), and CodeX RT (1.0.0 STU 1)
    G) Data Model defines (Prescription, Plan, Delivery) for (Course, Phase, Treatment Plan).
    H) Revision or Adaptation: See examples in section 1.6 of https://build.fhir.org/ig/HL7/codex-radiation-therapy/branches/master/index.html

    I) Open Issues
       1) Use of POST vs GET for searches: POST does not include IDs in the URL, GET is more broadly supported.
    J) Audience for Public Comment
       1) HL7

       2) CodeX RT
       3) AAPM Big Data Subcommittee
       4) mCODE
       5) ASCO
       6) ASTRO

       7) EHR vendors
    K) DECISION: The XRTS Profile rev. 0.4.1 (with edits from TC discussion) was approved to be published for Public Comment on 10/12/22.

XIV   ROTH Review
    A) Use Cases stable.
    B) Need to identify champions representing producers/consumers of ROTH to carry profile definition forward.
    C) Consumer example: VA Hospitals requiring TMS to support patient transfer. Solicit help from planning committee
    D) First approach - retrospective construction of manifest from collection of DICOM artifacts. Treatment records

    are a critical components of source artifacts.
    E) DICOM Part 10 and DICOM DIR was considered and abandoned as mechanism for a manifest. XML/JSON is considered more practical.
    F) Jim Percy will look at PixelMed anonymization tool - information that is being anonymized may represent keys items for manifest creation.

XV Topic 9.5 TPIC and TDIC
   A) David Wikler presented a proposal to refactor the TPIC and TDIC Profiles to account for differences between DRRs created by a TPS/TMS and those produced by a TDD/IGRT system, such as the knowledge of the SID.
     1) The TPIC Profile has been published for PC.
255   2) Editorial changes and new Actor names (Treatment Planning Reference Image Producer / Consumer) are proposed for Volume 1.
     3) Discussion of Actor grouping. This was not judged to be of great value.
     4) Patient positioning vs re-positioning use cases may need to be distinguished.
     5) Limit the scope of Content Modules to include only RT Images.
260   6) Distinction between Radiographs (Treatment Images), DRR Treatment Images, and DRR Treatment Reference Images.
   B) David will continue work on combining TPIC and TDIC Profiles as a single content Profile.

XVI Topic 10 BRTO changes driven by new CP's
265   A) BRTO III Updates – Jim Percy reviewed proposed updates to BRTO-II to create a new Profile
     1) Study Handling – Currently, the BRTO-II Profile recommends creation of a new Study for an RT Structure Set. For radiotherapy the Study does not have any semantics. This recommendation is to be removed. The RT Structure Set may or may not share the same Study as the CT. If it does, all Study-level attributes must be copied.
270   2) Patient Position (0018,5100) – Add a comment to handle safely those patient positions that a Consumer cannot accept.
     3) RT ROI Interpreted Type (3006,00A4) – Add OAR as defined term (per DICOM CP 2150)
     4) RT Segmented Property Category Code Sequence (0062,0003) and RT ROI Identification Code Sequence (3006,0086), Therapeutic Role Category Code Sequence (3010,0064), and Therapeutic Role Type Code
275   Sequence (3010,0065) are all R+
     5) Contour Geometric Type (3006,0042) – add CLOSEDPLANAR_XOR enumerated value. Decision to require use of XOR coding for excluded internal volume of ROIs.
     6) Conceptual Volume Identification Sequence (3010,00A0) – Add to RT Structure Set
     7) Entity Long Label (3010,0038) – primary human-readable label for dose
280   8) Dose Summation Type (3004,000A) - shall be PLAN_OVERVIEW
     9) Referenced RT Plan Sequence (300C,0002) – shall be present if there is a C-arm plan to reference.
     10) Add Plan Overview Sequence
     11) Require Referenced Structure Set Sequence (Referenced Image Sequence is not present).
   B) Jim will continue work on the BRTO-III Profile draft.
285

XVII Topic 11 TF Review
   A) Consistency of transactions/actors
     1) Spatial Registration Retrieval – add [RO-MMRO-5] label
     2) Typo in section reference to 7.4.3.4.1 in Vol 3 and TPPC
290   B) New transactions/actors
   C) Maintenance of actors/transactions
     1) List Actors in Appendix A and Transactions in Appendix B of the RO Domain TF.
     2) Maintain source of truth in Gazelle
   D) ACTION 221008: Jon to implement transition to Gazelle and clean up any inconsistencies.
295

XVIII Topic 3 TDOR Review for Trial Implementation cont.
   A) Continuation of discussion regarding "Treatment Session"
     1) Activity until session is closed.
     2) Defined by TMS based on what is scheduled for a day.
300   B) DECISION: The TDOR Profile rev. 0.6 (2022-01-24) was approved for Trial Implementation on 10/12/22.

[Adjourned for the day 10/12/22 at 4:00pm ET]
[Resume meeting 10/13/22 at 8:45am ET]

305 XIX Topic 12 High Definition Structure Review
   A) Richard Vögele has drafted a Profile (see IHE_RO_HDSS_v0.1.docx in IHERO TC Share / HDSS Box folder)

B) The HDSS Profile supports representation of high-definition structure sets.
   1) RT Structure Set has a single frame of reference
   2) Relaxes requirement that contours coincide with image planes and retires attached contours.
310   3) Adds Source Pixel Planes Characteristic Sequence to ROI
   4) Contour planes for a given ROI are orthonormal and equally spaced.
C) Questions raised include the following:
   1) How to test producers and consumers? Metrics for comparing, validating application handling of high-definition structures.
315   2) Is a high-def ROI Viewer Actor needed?
   3) What alternatives are there in DICOM for high-definition segmentation? Implementation of two new SOP Classes is too great a burden to consider the use of (Surface) Segmentation.
   4) Are there other applications for HDSS, e.g., template-based segmentation of solid applicators for brachytherapy?
320   5) How are HDSS instances to be recognized? Attributes or values as marker?
D) Next Steps
   1) Publish Clinical Impact Statement. Present Clinical Impact Statement and Profile draft to the PC.
   2) Assemble a subgroup to evaluate and comment on the proposed Profile, and perhaps identify additional use cases. Primary need is to generate interest in implementing HDSS and expose to the wider
325   community. Invite IHE-RO TC, DICOM WG-07, …
   3) Test dataset: suggestion to develop a standardized reference dataset with
   4) Use the same handling of CLOSED_PLANAR_XOR contour geometry as in BRTO-III.
E) Richard will upload HDSS presentation and CIS to IHERO TC Share in Box
F) <mark>ACTION 221004</mark>: Richard Vögele to assemble a subgroup to work on Profile.
330

XX Topic 13 CDEB Review
A) Richard Vögele and Christof Schadt reviewed an updated revision of CDEB with the TC. (An older revision (1.8, dated 1/24/2016) was found on the ihe-ro.org wiki.) A pre-published version was found with rev. 1.0 is to be archived. Re-start with this version.
335 B) Christof Schadt has taken over development of the CDEB Profile. He reviewed the status of the CDEB Profile.
C) Use cases for Dose References include (1) dose tracking (nominal dose to VOLUME or SITE) and (2) point dose (calculated dose value to a COORDINATE).
   1) There may be a use case for tracking nominal doses to a coordinate.
   2) Add DICOM 2nd Gen Dose Value Purpose attribute to RT Plan to explicitly differentiate tracking and QA
340   doses.
   3) Beam Dose
      (a) Beam Dose Meaning – should this be FRACTION_LEVEL only?
      (b) Beam Dose in RT Fraction Scheme Module – multiplies Cumulative Dose Reference Coefficient to compute dose from a beam at a control point. Some concern that the latter attribute (Coefficient) has
345   been misinterpreted as an absolute dose (Gy).
      (c) DICOM WG-07 should review and clarify the semantics of Cumulative Dose Reference Coefficient when Beam Dose is absent.
   4) Christof has added examples to illustrate use of the Profile.
D) <mark>ACTION 221005</mark>: Christof Schadt will clean up Profile draft and post to the IHERO TC Share / CDEB folder.
350

XXI   Topic 14 TPPC Brachy Review
A) Jim Percy reviewed the status of the TPPC-Brachy Profile (rev 2.23)
B) Open questions
   1) For Temporary LDR treatment plans, can we restrict to just 2 control points per channel? Any changes,
355   such as removal of ovoids, would necessitate multiple treatment plans. This implies one applicator and all channels are treated together for the same duration.
   2) Is there value in keeping Structure Set Producers/Consumers separate from Plan Producers/Consumers? Yes. E.g., a Plan Consumer is not necessarily a Structure Set Consumer.
C) Profile review
360   1) Actors must display plan parameters in the required format to demonstrate Profile adherence. E.g., absolute total dwell time and absolute dwell times at each CP.
   2) Need to include nominal source strength and time units in display of dwell times.

3) Discussion of where to specify display requirements for plan parameters: Vol 2 (Transactions) or Vol 3 (Content).

365   4) Ultrasound Brachy Producer/Consumer uses an Extended Ultrasound SOP Class with Image Plane Module.

D) Jim to continue work on the Profile draft with TC comments.

XXII   Topic 15 Abbreviated Dose Review

370   A) Voximetry – voxel-based Radiopharmaceutical Dosimetry

1) Koua Yang expressed the need to export dose information in the absence of an RT Plan.
2) DICOM CP 2152 adds Plan Overview parameters to RT Dose (see ftp://medical.nema.org/medical/dicom/final/cp2151_ft_AddBaselineCIDsToRTStructureSet.pdf)
3) Preliminary text in the DOSE (Abbreviated Dose) Profile is to be incorporated into the updated BRTO-III

375   Profile.
4) ACTION 221006: Jim Percy to update BRTO-III with the Plan Overview content from the DOSE Profile draft.

XXIII   QA Needs

380   A) Chris Pauer updated the group on QA related interoperability issues, including treatment summary (XRTS), QA billing, adaptive workflow.

B) Thomas Schwere has expressed interest in further development of BQAW.

XXIV   Topic 17 Connectathon / Testing

385   A) 2022 Connectathon Timeline

1) Registration, VPN access, and participation agreement: due 10/3/22
2) Test datasets loaded into Archive 10/14/22 – WB
3) Test Tool instructions distributed 10/14/22 – WB
4) Planning instructions for Connectathon updated 10/21/22

390   5) Test Tool results due – 10/28/22 – participants
6) Connectathon dates: Nov 14-18, 2022 9am-5pm ET at AAPM HQ
7) Wrap-up Meeting Nov 19, 2022 9am-12pm ET at AAPM HQ

B) Connectathon Network

1) Remote access via VPN for those who cannot attend *and* for off-site support.

395   2) Test procedures and planning instructions to be shared on ihe-ro.org wiki

C) Treatment Machine Characterization for Testing

1) Ion Machines for TPPC Ion
(a) IBA machine model: RayStation → Monaco, Mosaiq; Monaco → RayCare, RayStation
(b) Mevion machine model: RayStation → Mevion (SpotMapConverter) → RayCare, RayStation

400   (c) ProBeam machine model: Varian, RayStation(?) → Aria
(d) Carbon machine model: ??
2) RT3 Characterization by vendors – not yet available

D) Archive Testing – Jon to confirm RS Archive (RayPACS) testing

E) Connectivity/Bandwidth at AAPM

405   F) XRTS Workshop Planning

XXV   Topic 17.1 Test Tool Updates

A) Test Tools Status

1) DRRO Validator 0.0.6 (expires 10/1/22) – re-release with new expiration (2023-02-01).

410   2) XRTS Validator 2.3.0 (expires 10/1/22) – re-release with new expiration (2023-02-01)
3) Content Validator 1.1.15 (2022-08-12)
(a) Issues addressed in current release (1.1.15)
(i) Fixed dataset import (crash with unknown SOP class)
(ii) Image orientation added to test report

415   (iii) Update patient position rule to add optional values.
(b) Issues being evaluated: Handling of Scan Mode in RT Ion Beams Treatment Record
(c) Demcon to release next version (1.2.0) before Connectathon
4) UPS Validator 1.4.0 (2021-11-05) – no open issues at present, start development of TDOR support

B) Demcon Work Priorities
420
    1) Re-release expired tools
    2) Content Validator – implement TDRC-Ion and validate with test data
    3) FHIR/XRTS Validator – HTTPS support, validation
    4) DRRO Validator – awaiting feedback, extension: content validation of deformed images, structure sets, dose
425
    5) TDOR – evaluate support requirements

[Adjourned for the day 10/13/22 at 4:00pm ET]
[Resume meeting 10/14/22 at 8:45am ET]

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XXVI Topic 17.5 Test Tool Data
  A) Bruce Rakes has creating test data for use by Demcon for TPPC-Ion test tool validation.

XXVII Topic 18 Summary of week's work
  A) The TC reviewed and revised minutes of the week's discussions.
435

XXVIII Topic 19 Goals/Action Plan/Responsibilities for 2023
  A) Profile Status Review (ihe-ro.org)
    1) CPRO – concept, never developed – to be retired
    2) RXRO – potentially overlap/replacement by XRTS
440
    3) QAPV – TI, never tested
    4) ROIT – blocked, reconsider development using XML/JSON
    5) SimRO – no consensus, limited interest – recommend retirement
    6) TPSC – same as HDSS? Or 2nd Gen RT Segmentation? – check with Richard
    7) TDRC-Ion – add to list
445
    8) TPDC-Ion – add to list
  B) Profile Development
    1) CDEB – consider extending CDEB to include requirements for RT Ion Plan
  C) Profile Document Management
    1) Maintain Profile drafts in IHERO TC Share in Box.
450
    2) Publish updates to ihe-ro.org wiki on state change (copies stored in document library)

XXIX Updated minutes approved without objection at 11:39am ET.

XXX Adjournment at 11:40am ET.
455