IHE-RO Technical Committee
Face-to-Face
Jan 25-28, 2016 at 8:30-5:30, Jan 29 8:30-12:00 ET
Melbourne, FL @ Sun Nuclear

Technical Committee Chairs:
Scott Hadley, PhD
Chris Pauer

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	1/25/16	1/26/16	1/27/16	1/28/16	1/29/16
Chris Pauer	Sun Nuclear	chrispauer@sunnuclear.com	X	X	X	X	X
Walter Bosch	Wash. Univ.	bosch@wustl.edu	X	X	X	X	X
Uli Busch	Varian	Ulrich.busch@varian.com		X	X	X	X
Sven Siekmann	Brainlab	Sven.siekmann@brainlab.com	X	X	X	X	X
Jim Percy	Elekta	Jim.percy@elekta.com	X	X	X	X	X
Scott Hadley	UMich	swhadley@med.umich.edu	X	X	X	X	
Koua Yang	Philips	koua.yang@philips.com	X	X	X	X	X
Alan Zander	Sun Nuclear	alanzander@sunnuclear.com	X		X	X	
Wouter Vreeman	ICT	wouter.vreeman@ict.nl			W		
Harold Beunk	ICT	Harold.beunk@ict.nl			W		
Eli Stevens	Mobius	elis@doselab.com			W		
Mika Mietinnen	Varian				W		
Jennifer Clark	Sun Nuclear	jclark@sunnuclear.com			X		
Michael Bealer	Sun Nuclear	mbealer@sunnuclear.com			X		

X = In person W = via Webex

Minutes:

I. Call to Order (Jan. 25, 2016 at 9:00 am CDT) – a quorum was declared.
   a. Review Agenda
   b. Other broad topics to add – Agenda was revised and approved without objections.
   c. Minutes from last meetings
      i. Minutes from IHE-RO TC meeting 9/27/15 in Melbourne, FL were reviewed and approved without objection.
      ii. Minutes from IHE-RO TC meeting 10/21/15 in San Antonio, TX were reviewed, corrected (location of meeting), and approved without objection.

II. Business
   a. Topic 1: Level Set
      i. Updates on IHE-RO activities
         1. Planning
         2. Oversight, Steering Committees – the TC reviewed minutes from Jan 19 IHE-RO Steering Committee meeting.
            a. ASTRO has requested an alternate for IHE Board contact: Currently only Bruce Curran.
            b. **DECISION:** Scott to serve as alternate for IHE Board
         3. IHE Domain Coordination Committee (Chris P. and Crystal C.)
            a. The use of standards in development (e.g., FHIR) in IHE Profiles was mentioned. Such Integration Profiles may also be labeled as "In development".
      ii. ASTRO
         1. Updating the participation agreement in light of IHE Membership fee
            a. **ACTION 160101**: Chris P. to check with Crystal on timeframe of participation agreement. – Complete as of 1/29/16
      iii. ROSSI (RO Safety Stakeholders Initiative)
      iv. DICOM WG-7 Update – Uli to update when he arrives (updated 1/26/16)
         1. 2nd Generation RT Update
         2. Update on Change Proposals
            a. CP1291 adds derivation codes for dose composition
            b. CP1431 adds effective (vs. physical) beam dose
            c. CP1559 adds General Reference Module – re-uses reference mechanism from General Image Module for other contexts
            d. CP1530 adds purpose codes in Reference Instance (To be added to TDIC for Cone Beam imaging)
            e. CP1502 relaxes requirements on Pixel Intensity Relationship (has implications for TPIC, TDIC)
         3. Supp 185 – Content Assessment IOD – review is nearly complete. One open issue related to macros remains. All needed functionality is now in the Supplement.
         4. The ROI Supplement is to be reviewed in March WG-06 meeting
      v. MITA
      vi. AdvaMed and Standards Efforts
         1. RT2- Radiation Therapy Readiness check (currently in review in preparation for ballot)
         2. RT3-Beam Model Standard –scope includes valid geometric and dosimetric parameters for a machine – AdvaMed call 1/26/16
         3. RT4-(potential) Standard for Machine, Patient QA – scope is being defined

   b. Topic 2: Profile Priorities for the Year – The TC feels the highest priorities expressed by the PC are being addressed.
      i. **Treatment Delivery Device Integration** is well covered by current and proposed IHE-RO profiles (includes Treatment Record Consistent Content)

ii. **Radiation Oncology Workflow Exchange** (ROWE) is in development in the RO-HIS workgroup – TC reviewed WG minutes from 12/7/15, 1/12/16

iii. **User Case Anonymization**

1. **ACTION 160102**: Jim P. and Walter B. to evaluate existing profiles (IHE-RAD TF1 Teaching and Clinical Trials Export (TCE) Profile.

iv. **Brachytherapy** – DICOM Subgroup is developing an Integration Profile

v. **Authentication / Authorization** – It was the consensus of the TC that is not a Rad Onc specific issue.

1. **DECISION:** Remove this Use Case from further consideration in IHE-RO. Users and venders are referred to IHE-ITI Enterprise User Authentication (EUA) and Cross-Enterprise User Authentication (XUA) Profiles.

c. Topic 3: Profiles in Public Comment

i. TC reviewed comments received for TD*C and TP*C Profiles –

1. Treatment Delivery – Image Content (TDIC)
2. Treatment Delivery – Plan Content (TDPC)
3. Treatment Planning – Image Content (TPIC)
4. Treatment Planning – Plan Content (TPPC)
5. MMRO-III (Multi-Modality Registration) – no comments received

ii. Corrections are noted below:

1. In TPPC (ihe-ro_tppc_v1.10_pc.docx): Applicator Geometry Sequence (300A,0431) should be required (R+) for Basic Static Electron beam in TPPC 7.4.4.1.9.2
2. In TPIC (ihe-ro_tpic_v1.9.doc) Appendix A – change Actor Summary Definition for "Treatment Planning Reference Image Content Consumer" to "**A system receiving reference images to control / correct the position of the patient in a Radiotherapy treatment.**" (updated 1/26/16)
3. In TPIC (ihe-ro_tpic_v1.9.doc) Appendix B – change Transaction Definition for "RO-TPIC-1] to "**The retrieval of Reference Images by a system managing Radiotherapy treatment sessions**." (confirmed 1/26/16)
4. In TPIC (ihe-ro_tpic_v1.9.doc) in Section 7.3.3.1.1.2 in "Frame of Reference, Isocenter and Patient Position"
    a. The Frame of Reference UID shall be the Frame of Reference UID of the ~~**referenced RT Plan**~~ **image instances used to generate the DRR**. (updated 1/26/16)
    b. The Patient Position (0018,5100) shall be **equal to the Patient Position in the RT Patient Setup Module of the referenced RT Plan.** (updated 1/26/16).
5. In TPIC (ihe-ro_tpic_v1.9.doc) in Introduction to the Supplement, replace paragraph with: **This profile defines the content of 2D images to be used as reference images …** (confirmed 1/26/16).

iii. Review TDIC comments 1/26/16

1. In TDIC (ihe-ro_TDIC_v1.4.doc) in section 3.Y.1.4.1.2 Message Semantics, remove specifications for Study to be used for acquired images.
2. Add "See Note 1" to Block Sequence (300A,00F4) attribute in section 7.4.7.1.1.2. and edit introductory text in this section to clarify reference to Note 1.

iv. Next steps – to be discussed later in this meeting.

[Break for lunch 1/25 at 12:15pm]
[Resume meeting 1/25 at 1:15pm]

d. Topic 4.5: ICT work items and plans for 2016

i. A more complete user manual (and examples) for the Custom Content Validator tool would be helpful. – Part of the installation, Click on help button for PDF user manual

ii. What rulesets are supported? What limitations are there? Can this approach be used for all content profiles? How will the test tools be tested? – One ruleset file is defined per module. The IOD file selects which module file is used.

iii. What is Check Dataset vs. Custom Content Validator? Check Dataset is a fileset validator for BRTO (no communication). It does not yet use the new ruleset framework

e. Topic 5: Discussion of SAMs Session for IHE-RO at AAPM
   i. Overall plan 20-30 min each
      1. Scott – General Overview (20 min)
         a. What is IHE? Why aren't standards enough?
         b. IHE process
         c. Terminology: Profile, Actor, Transaction, Connectathon
         d. Content Profile
      2. Walter – IHE-RO testing (20 min)
         a. What is a Connectathon: Live, Structured, Multi-vendor Test Event
         b. Test tools
         c. Test data / exchange via Archive
         d. Fan-in/Fan-out – importance of vendor participation
         e. Examples: ARTI (TPPC), MMRO-II, TDW-II (?)
      3. Chris – Profile Development (20 min)
         a. Vendor cooperation
         b. Grand scheme of Planning → Delivery for Content and Workflow (Diagram)
         c. Safety-related Examples
            i. QAPV
            ii. RXRO
            iii. CDEB
            iv. ROIT – Templates – TG-263
         d. Benefits for patient safety
      4. Q and A – 30 minutes
   ii. **ACTION 160103**: Scott, Walter, Chris to provide an outline and ~6 questions by mid-May 2016

f. Topic 6: Survivorship Care Plan
   i. The TC reviewed the ASTRO Survivorship Care Plan template (https://www.astro.org/uploadedFiles/Content/Practice_Management/SCPTemplate.pdf)
      1. Much of the information in this form does not typically exist in the Radiation Oncology Information System
      2. Completion of the form involves input from multiple disciplines.
      3. Extraction of a **summary of a patient's radiation therapy** would be helpful. This is likely the most important contribution IHE-RO could make.
      4. It may be helpful to coordinate this effort with ASCO.

g. Topic 19: Deformable Registration
   i. Last discussion was at Oct 2015 TC meeting in San Antonio
   ii. Begin drafting DRRO Profile
   iii. What are the Actors? Should we (a) map the MMRO-III Actors or (b) use simple Producer/Consumer pair?
      1. How does one demonstrate that a Consumer interprets the DSRO correctly?
      2. Approach (b) is similar to ARTI, which only specifies constraints on RT Plan.
      3. Approach (b) is easier to specify than (a) but may be more difficult to test.

[Adjourn for the day 1/25 at 5:20pm]
[Resume meeting 1/26 at 8:45am]

h. Updated/confirmed comments received for TD*C and TP*C Profiles with Uli Busch (see section II.c.ii above)

i. RT3 Discussion with AdvaMed – conference call 11:00am–12:00pm

j. Topic 8: CDEB review for Public Comment (Consistent Dose for External Beam radiation)

i. Discussion of v1.8 of CDEB profile
    1. The profile defines four Actors:
        a. Consistent External Beam Dose Plan Producer & Consumer
        b. Consistent External Beam Dose Record Producer & Consumer
    2. Support for single targets is required, support for *multiple targets* is optional. (Modules for Single and Multiple Targets to be re-ordered for consistency throughout.)
    3. DECISION: Treat *support for Multiple Targets* as an option for CDEB Plan Producers and Consumer Actors. (Separate Actors are not needed.)

[Break for lunch 1/26 at 12:30pm]
[Resume meeting 1/26 at 1:45pm]

k. Topic 19: Deformable Registration (continued from 1/25/16)
    i. Uli reviewed the structure of Content and Workflow Profile
    ii. The consensus of the TC is to develop the DRRO using the same type of Actors as MMRO and DCOM
        1. Deformable Registrator
        2. Deformable Registered Display
        3. Deformable Registered Contourer
        4. Deformable (General) Registered Dose Display
        5. Deformable Registered Dose Compositor
        6. Deformable Registered Compositing Planner
    iii. New Transactions
        1. Store DSRO
        2. Retrieve DSRO
        3. (Deformed ?) Composite Dose Storage
    iv. Issues specific to Deformable Registration
        1. Finite precision of deformation map
        2. Finite domain (i.e., extent) of deformation map
        3. Unspecified values (NaN,NaN,NaN)
        4. Pre/Deform/Post non-uniqueness – best practices?
        5. Inverse of transformation may not exist
        6. Direction of transform (Reg → Src) is opposite to that for SRO

l. ROI Templates
    i. An ROI Template supplement proposal is in preparation for presentation to DICOM WG-06 in March 2016. Presentation to WG-06 to include Use Cases (4), proposed approach, main data for this IOD, diagram showing distribution of templates for a clinical trial.
    ii. Next step is to draft the IHE-RO ROIT profile.
        1. Two Actors
            a. Template Publisher
            b. Template Consumer
            c. Validate Segmentation? (optional transaction?)
        2. Two Transactions
            a. Create ROI Template Media File
            b. Read ROI Template Media File
        3. Questions
            a. Media file transport management?
            b. What is required of a template consumer? At minimum, the user must be able to select the template and apply its content while performing segmentation.

m. IHE-RO PC Call
    i. Members of the TC participated in a monthly call of the IHE-RO Planning Committee.
        1. ASTRO is not requiring IHE membership for participation in PC or TC meetings.
        2. Jan 31 is deadline for Use Case nominations

3. Email soliciting Use Cases has been sent to all ASTRO members
4. Discussion of Connectathon: volunteer judges, dates/venue, vendor commitment
5. Use Case prioritization

[Adjourn for the day 1/26/16 at 5:30pm]
[Resume meeting 1/27/16 at 8:30am]

n. Topic 12: ICT Sprint Review and Next Steps (GoToMeeting at 8:30am ET with Wouter Vreeman)
   i. Overview of 2015 services
      1. Migration from Google Code to GitHub, bug tracking
      2. Tool to simplify update of definition files
      3. Test tool development
   ii. Overview of released test tools
      1. Definition files 2015b
      2. UPS Client Server
      3. Custom BRTO, MMRO-II, DCOMP (user can use own dataset)
      4. BRTO dataset validator
      5. Custom Content Validator (rules generated from csv file)
      6. BRTO-II on new test framework (in progress)
   iii. Custom Content Validator – test content of DICOM file
      1. Use Volume 3 (DICOM content) to generate content rules
      2. 4 steps:
         a. make .csv file
         b. generate module and rules files and fill in rules
         c. make IOD modules overview table .csv file in excel
         d. generate the rules
   iv. New test framework
      1. BRTO-II test tool is being developed in the new framework
         a. The Content rules generator is used to create a set of basic BRTO content validation
      2. Other profiles will be added into the new framework
         a. Fewer test tools
         b. Re-use transactions
         c. Re-use content validation
         d. Easier to maintain/release
   v. Upcoming Test tools development
      1. Update QAPV
      2. Sup 147 2nd Gen RT
      3. Update definition files for DICOM 2015D
      4. Update dataset validator for MMRO-III
      5. Implement CDEB profile
      6. Implement QRRO profile
      7. Implement RXRO profile
      8. Implement TDIC profile
      9. Implement TDPC profile
      10. Implement TPIC profile
      11. DPDW trial implementation of TSM
   vi. IHE-RO wiki support
      1. Test tool installers and release notes can now be downloaded
      2. Wiki page has link to GitHub for bug tracking
   vii. Questions
      1. A more complete user manual (and examples) for the Custom Content Validator tool would be helpful. – This is included in the installation: Click on help button for PDF user manual.

2. What rulesets are supported? What limitations are there? Can this approach be used for all content profiles? How will the test tools be tested? – One ruleset file is defined per module. The IOD file selects which module file is used.
3. What is Check Dataset vs. Custom Content Validator? Check Dataset is a fileset validator for BRTO (no communication). It does not yet use the new ruleset framework

viii. RFP for next year's contract has been sent
1. Continuing effort for development
2. Support for test tools during Connectathon(s)

o. Topic 13: BRTO-II / Segmentation Profile (Basic RT Objects)
i. Review "Introduction to this Supplement" and Open Issues
ii. Use the term *off-slice* to refer to contours that do not coincide with CT images slice locations and *on-slice* to refer to contours that coincide with image locations. Include a definition of these terms in the Concepts section of the Profile supplement. Change terminology from "high-resolution" contours to "off-slice".
iii. DECISION: Retain limitation to plans based on *CT images.*
iv. Inclusion of the DVH Module in an optional RT Dose storage transaction was proposed. Import/display of DVHs may optionally be supported by the Dose Display Actor. (Sven will draft text to be reviewed later.)
v. Discussion of image resampling: support for multi-series images is *not* required. However, if a Contourer re-samples an image series, it must store the re-sampled image Series instance that is referenced by the RT Structure Set it produces.
vi. Confirmed that dose grid spacing must be regular (i.e., periodic) in X, Y, and Z. However, the row, column, and plane spacing need not be the same.
vii. Sven will revise profile draft for review 1/28/16.

p. Topic 14: Mid-Week Recap / IHE-RO Future Discussion
i. Are we addressing challenges?
1. Membership
2. Frequency of Testing
3. Challenges of Connectathon – How to assure commitment to participate in testing?
4. IHE-RO Fees for Vendors
a. Find common agreement on what vendors are willing to pay. Need a stable and reliable environment to assure engineering management support for participation.
b. It is difficult for a vendor to justify expense of resources (membership and participation) if other vendors are not similarly committed to the process.
5. Proposals discussed
a. ASTRO needs to take leadership as domain sponsor in calling vendors to commit to participation.
b. Set a firm deadline (in May 2016) for Connectathon participation.
6. IHE-RO Future discussion (to be continued 1/27 afternoon)

[Break for lunch 1/27 at 12:30pm]
[Resume meeting 1/27 at 1:30pm]

q. Topic 15: QAPV Updates / Public Comment? (Quality Assurance with Plan Veto)
i. Chris reviewed the QAPV Draft Profile and provided an update on DICOM Sup 185 (Content Assessment)
ii. Open Issues and Questions
1. Profile not correct with regard to DICOM supplement – update terminology to "Content Assessment" with Assessment Summary: PASSED / INCONCLUSIVE / FAILED. FAILED is suggested to link to an outcome of "Major Issues Found"
2. QAPV Cross Profile Considerations

a. TDPC – It is anticipated that plans of different beam types will have different requirements and safety checks.
b. IHE-RO TF content adherence can be noted in the DICOM Conformance Statement for adhering AEs by reference to supported TDPC Beam Types.

3. Check DICOM Module references to RT Plan IOD Modules for Volume 3, Chapter 7. Look for conflicts in requirements for modules and attributes with TDPC.
4. There is no need to display any plan attributes unless a major issue is found in the quality assessment. This is noted in Message Semantics.
5. Selection of (QAPV_EQUIVALENT) plans for comparison was discussed. Is a new Actor needed to manage the relationship among RT Plan instances when plans are edited in the TMS?

r. IHE-RO Open Session with Sun Nuclear Corporation personnel (2:30-3:30pm)

s. IHE-RO Future Discussion (continued from 1/27 AM) – Chris has detailed notes
   i. Are we addressing challenges?
      1. Letter to AAPM and ASTRO leaders from TC (see most directly the effects of lagging company support).
      2. Need vendors to re-commit to financial/resource support for IHE-RO
      3. Warnings: Connectathon at risk. Process at risk.
      4. Unique contributions of IHE-RO – vendor benefits
      5. Cost of doing business
      6. Scott will start on a draft for review by TC on Friday AM
   ii. Need to change TC call data/time
      1. What works for everyone? → **3rd Tues of the month at 10:00am ET**
   iii. Connectathon Results and how to publicize – **ACTION 160104**: Scott to check with Crystal regarding what is needed to publish Connectathon results

t. Topic 7: Prescription Profile (RXRO)
   i. Sven reviewed the prescription content (DICOM Sup 147) to be included in this Profile and a summary of the ASTRO Prescription Survey.
   ii. Prescription usage varies and includes: (a) High-level physician intent, (b) "Wishlist" for treatment planning, (c) Directive for plan optimization, and (d) Post-planning summary (i.e., dosimetric objectives achieved by an actual plan).
   iii. The overall workflow is known (HIS → OIS → TPS → TMS), but details vary by clinic. The initial focus of the Profile is on *content*. More work is needed to define what workflow considerations should be addressed in this profile.
   iv. A range of options for Actors was discussed, including (a) producer and consumer; (b) complete and limited writer, updater, and reader; and (c) more workflow-specific Actors. More work is needed to define
   v. Example of Options (based on DICOM Modules):
      1. Objective Directive
      2. Patient Setup Directive
      3. Patient Information
      4. Enhanced Object Definition
      5. Treatment Directives
   vi. The consensus of the TC is to concentrate on content for now.
   vii. **ACTION 160105**: Sven to re-cast RXRO as a Content Profile, identifying common clinical "scopes" for prescriptions. Schedule t-con with Scott Hadley and Dr. Neal Martin to evaluate these scope definitions.

[Adjourn for the day 1/27/16 at 5:30pm]
[Resume meeting 1/28/16 at 8:40am]

u. NOTE: Convention for Profile text revisions
   i. Use 0.x for drafts prior to Public Comment

ii. IHE assign 1.0 for initial Public Comment revision

v. Topic 17: Treatment Delivery Record Content (TDRC)
    i. Chris reviewed a draft (version 0.1) supplement for the TDRC Profile, which specifies *content* of the RT Beams Treatment Record transferred from TDR Producer to TDR Consumer.
    ii. Discussion of the supplement included
        1. Cross Profile considerations should reference both workflow (TDW-II, IPDW, DPDW) and content (TDPC, CDEB) profiles.
        2. IOD Definitions (RT Treatment Record IOD for Photon External Beam) for both Technique-Specific and General Use.
        3. Module requirements for Technique-Specific and General Use
        4. Is time synchronization an important (cross-profile) consideration for TDRC?
        5. Use Case is transfer of RT Treatment Beams Record from Producer (TDD) to Consumer (TMS).
            a. Document a patient's treatment for quality assessment
            b. Document treatment for billing
            c. Machine QA
        6. Attribute requirements for RT Beams Session Record Module
            a. Referenced RT Plan Sequence (Type 2) references the plan that is to be treated. Shall be present (R+). A treatment record must reference a plan instance.
            b. Referenced Beam Number and Beam Name must be present (R+):
            c. Beam Description (Type 3): no additional requirements
            d. Primary Fluence Mode (R+*)
            e. Referenced Verification Image Sequence (no additional requirements)
            f. Dose reporting occurs at multiple levels: CP, Beam, and Fraction. There are multiple ways to reference doses in the RT Beam Treatment Record.
                i. Referenced Measured Dose Reference Sequence? (Beam level)
                ii. Referenced Calculated Dose Reference Sequence? (Beam level)
                iii. CDEB Dose Reference (Calculated Dose Reference Module) is at the Beam Level.
            g. The Referenced Dose Reference Number links to a dose reference in the RT Plan (CDEB)
        7. The maximum *scope* of an RT Beams Treatment Record IOD is a fraction (may be a subset of a fraction).

w. Topic 10: Query / Retrieve Profile (QRRO)
    i. Koua reviewed version 1.6 of the QRRO Profile
    ii. Actors are Content Retriever and Content Provider
    iii. Query Transactions are by IOD or group of IODs (to specify key attribute requirements). All SOP Classes retrieved in IHE-RO profiles should be covered. (Some SOP Classes may be grouped.)
        1. RT Structure Set Query
        2. RT Plan Query
        3. RT Dose Query
        4. RT Image Query
        5. RAD-14 (re-use for Images)
        6. REG, Deformable REG
        7. …
    iv. Two Retrieval Transactions are defined:
        1. Instance Retrieval
        2. Series Retrieval
    v. Inter-object references (Instance UIDs) should be supported in the C-Find responses for Query Transactions

[Break for lunch 1/28 at 12:30pm]

[Resume meeting 1/28 at 1:35pm]

x. Topic 20.5: BRTO-II DVH
   i. Sven reviewed BRTO-II Profile (revision v0.3)
   ii. Two new Transactions have been introduced to support DVHs
      1. DVH Dose Storage [RO-BRTO-II-3] – Optional transaction in Dosimetric Planner
      2. DVH Dose Retrieval [RO-BRTO-II-4] – Optional transaction in Dose Viewer
   iii. Retrieval of an existing Dosimetric Plan instance by the BRTO-II Dosimetric Planner was discussed. This Transaction is *not* included in the Profile.
   iv. Handling of QA plans was mentioned. This is an important issue that will be addressed in a separate Profile.
   v. The DVH content may be stored in the same RT Dose instance as the volumetric dose grid, or it may be stored in a separate RT Dose instance containing only the DVH information.
   vi. The Frame of Reference Module is required (M) for dosimetric RT Plan instances.
   vii. Two *Patient Position* Options are defined
      1. Base Setup
      2. Decubitus Setup
   viii. Review of Attribute requirements for RT DVH Module
      1. Support absolute dose (GY) and volume (CM3)
      2. Cumulative and Differential DVHs
      3. PHYSICAL and EFFECTIVE dose
      4. Normalization point may not be included
   ix. DECISION: Motion to promote BRTO-II to Public Comment pending corrections from 1/28/16 discussion (v. 0.4). Approved without objection.
   x. **ACTION 160106**: Sven to incorporate changes in BRTO-II draft profile and send to Chris for Public Comment submission to Mary Jungers.

y. Topic 20: Brachytherapy and ION IHE-RO efforts
   i. The DICOM WG-07 Brachytherapy sub-group has a new chair (Yury Niatsetski). In addition, the author of the IHE-RO Profile (Milena Donato) has left the group.
   ii. There are differences in the usage (definition of zero position) of HDR dwell positions among manufacturers. These should be reconciled.
   iii. The group is proceeding to incorporate enhancements in 1st Gen RT using private attributes for normalization, source characterization, and dose coordinate transformation.
   iv. An IHE-RO Brachytherapy Work Flow (BWF) Profile for 1st Generation DICOM Brachytherapy plans is in development.

z. Topic 4: Discuss next steps: RO-HIS (Profile work to bridge RO processes into and out of the Hospital Info. System/EHR/EMR)
   i. Uli reported on progress in the RO-HIS group. The group has met 12/715 and 1/12/16.
   ii. Work is in progress on RO-HIS profile using HL7.

aa. Topic 18: Patient Safety Workflow Profile
   i. Discussion of information needed to perform plan quality checks before and after treatment delivery. This information includes Treatment Records (often incomplete) and Treatment Delivery Logs (non-standard format).
   ii. QA Workflow automation to capture results of quality checks of high-frequency logs, EPID images, etc.
   iii. Electronic communication is needed to integrate QA check results in clinical process.
   iv. Next step – assess possible Use Cases.

bb. Topic 19: Deformable Registration
   i. References to DSRO, Plans, Dose should be added to Content Requirements for DRRO. (Also need to revise DCOM Profile to include these references).
   ii. Data to be retrieved and stored by DRRO Actors was discussed.

[Adjourn for the day 1/28/16 at 5:35pm]
[Resume meeting 1/29/16 at 8:50am]

cc. IHE-RO Future Discussion (continued)
    i. Draft of letter to AAPM and ASTRO leadership
        1. Need to re-establish common commitment of vendors to participation in the IHE-RO test process.
    ii. Copy to be sent to IHE-RO Task Group chairs and PC chairs.

dd. Future Meetings
    i. IHE-RO TC meeting to be held in US May 9-13, 2016
    ii. DICOM WG-7 meeting to be held in Munich May 23-27, 2016
    iii. **ACTION 160107:** Walter to check on availability of Wash. U. for May 9-13, 2016 IHE-RO TC Meeting
    iv. **ACTION 160108**: Jim to cancel meeting location at Elekta Crawley (as soon as May TC meeting plans in US are finalized)

ee. Topic 21: Review Minutes

ff. Topic 22: Review Action Items
    i. **ACTION 160109**: Thomas Schwerer to finalize TDW-II for Public Comment by May TC meeting
    ii. **ACTION 160110**: Chris to continue to flesh out QA Workflow
    iii. **ACTION 160111**: Chris to update TDRC
    iv. **ACTION 160112**: Chris to update CDEB
    v. **ACTION 160113**: Chris to prepare QAPV for Public Comment (v. 1.25)

III. Future Meetings
    a. IHE-RO Meetings
        i. IHE-RO TC Meeting – May 9-13, 2016 in US (**St. Louis, Ann Arbor,** or Washington)
        ii. IHE-RO TC Meeting at ASTRO Annual Meeting – Sep 28 (8:30am-5:30pm) – Oct 1, 2016 (end at 12pm), Boston, MA
        iii. IHE-RO Connectathon 2016 – Week of Oct 17th (Madison, WI); 1/2-day TC meeting on Saturday to finalize results

    b. Other meetings through 2016
        i. ICCR June 27-30, 2016, London
        ii. AAPM Jul 31-Aug 4, 2016, Washington
        iii. ASTRO Sep 25-28, 2016
        iv. DICOM WG-7 Mar 7-11, 2016, at NEMA, Washington, DC
        v. DICOM WG-7 May 23-27, 2016, Munich
        vi. DICOM WG-7 Aug 4-6, 2016 (after AAPM) in Washington, DC (consider starting Aug 3)
        vii. DICOM WG-7 Oct 31-Nov 4, 2016
        viii. DICOM WG-6 May 30-June 3, 2016, Munich
        ix. DICOM WG-6 Sep 12-16, 2016, Washington, DC
        x. DICOM WG-6 Nov 7-11, 2016, Washington, DC

IV. Adjournment – meeting adjourned 1/29/16 at 12:05pm