Minutes

Discrete Positioning and Delivery Workflow (DPDW)

Conference Call

January 22, 2019

10:30am – 11:30am EST

DPDW Subgroup Chair:

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IHERO Task Force Co-Chairs

**Bruce Curran, MEng, FAAPM, FACMP, FACR**

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**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.*

**In Attendance:**

Thomas Schwere (Varian)

Harold Beunk (ICT)

Gergely Parditka (Brainlab)

# Call to Order

The meeting was started at 10:30am EST.

# Update from IHE-RO TC Meeting January 2019

The chair gave a quick update on the TC meeting in Melbourne. There is big interest in IPDW. The concepts used in IPDW and DPDW are very similar, therefore the DPDW subgroup should move the focus from DPDW to IPDW. Furthermore, it was also confirmed that using a protocol based approach (instead of using detailed instruction objects from DICOM supplement 160) is the way to go in a first version of IPDW. It was also agreed to de-scope monitoring use cases in a first version of DPDW.

# Design Topics

## Granularity of UPS

The group discussed that there should be a group of UPS for every treatment position consisting of Acquisition, Registration, Correction and Delivery (see also old [presentation](https://wiki.ihe.net/index.php?title=Special:Upload&wpDestFile=DPDW_AtomicUnitOfWork.pdf) from 2016). The BDI for the Delivery UPS only contains the beams for this particular treatment position. This allows (but not limits) to specify independent patient positioning per treatment position. A treatment position can be characterized by the treatment isocenter and patient support angle of the beam. When doing the scheduling in TMS, the user is specifying the scope of a patient positioning task by selecting the appropriate beams of the plan. The scope can be individual beams, group of beams (e.g. sharing a certain isocenter) or whole plan.

## Grouping of UPS into Tasks

The four UPS for a certain treatment position shall be grouped into a task. The identifier of such a task could be a UID or a simple number. The advantage of a number is that it could also be used to specify the order of the tasks within the treatment session. Otherwise the ordering would be based on the Scheduled Procedure Step Start DateTime. The “problem” with the latter approach is that the tasks had to be evenly distributed (artificially) over the whole timeslot of the treatment session.

The task identifier shall be encoded in the Scheduled Processing Parameters Sequence.

The dependency of the UPS regarding their execution order within a task can always be determined by the type of UPS. Therefore, there is no need to relate the UPS along DICOM CP 1345. Furthermore, the task ID can also be used to specify the execution order of the tasks which is not possible using the mechanism introduced with DICOM CP 1345.

## Grouping of UPS into Treatment Sessions

The UPS scheduled for one and the same treatment session shall be grouped together using a treatment session UID. The treatment session UID shall be encoded in the Scheduled Processing Parameters Sequence. Once DICOM 2nd gen objects are available, the very same treatment session UID could be annotated in the resulting Tx artifacts (like images or Tx records).

## Protocols

The protocols should be identified by a standard coding scheme instead of free text, i.e. consisting of designator, code value and code meaning. Protocol codes have to be shared between TMS and PDS.

The mechanism for specifying a protocol shall be available for types of UPS. The protocol code shall be specified using the Scheduled Processing Parameters Sequence.

## Deviation to the initially Scheduled Procedures

Topic deferred to the next call.

# Adjournment

The meeting was adjourned at 11:30am EST.

Appendix A: Administration and Process Information

Documents are published at the following locations. If you have problems in accessing the document, please contact the Chair ([thomas.schwere@varian.com](mailto:thomas.schwere@varian.com)).

## Process of Authoring:

Steps:

1. Download a local copy of the document from locations below
2. Open this copy and remove all change bars
3. Ensure, that Changes Bars are switched on
4. **Make your changes**
5. Provide the updated version to the Chair

## Location of Documents:

DPDW Subgroup Minutes

<http://wiki.ihe.net/index.php?title=RO_DPDW_WorkingGroup>

DPDW Profile

The DPDW Profile is an IHE-RO document.

The current version is available in the IHE-RO Org Wiki:

<http://www.ihe-ro.org/>

Please find the current document under this page:

<http://www.ihe-ro.org/doku.php?id=doc:profiles>

Supp 160

DICOM Supplement 160 (Patient Positioning and Workflow) in s DICOM WG-07 document.

The current version is available at the DICOM ftp server:

<ftp://d9-workgrps:goimagego@medical.nema.org/MEDICAL/Private/Dicom/WORKGRPS/WG07/Sup/Sup160_PatientPositioningAndWorkflow>

## Mailing List:

The mailing list for the DPDW subgroup is:

[2018.iherodpdw@aapm.org](mailto:2018.iherodpdw@aapm.org)

Appendix B: Task Assignments

Per end this TCon (2015-01-27).

| **No** | **TX / Area** | **Old Number** | **Title** | **Group** | **Owner** |
| --- | --- | --- | --- | --- | --- |
| 1 | ./. | ./. | Use Case Delivery-Device Independent Imaging |  | David Wikler |
| 2 | RO-DPD-200 | RO-DPD-01 | Worklist Query for Positioning Acquisition | Acquisition | Martin Vonach |
| 3 | RO-DPD-201 | RO-DPD-02 | Retrieve Device Position Information | Acquisition | Martin Vonach |
| 4 | RO-DPD-202 | RO-DPD-03 | Request RT Patient Position Correction | Correction | Martin Vonach |
| 5 | RO-DPD-203 | RO-DPD-04 | Store RT Patient Position Modification Instruction | Correction | Martin Vonach |
| 6 | RO-DPD-204 | RO-DPD-05 | Store RT Repositioning Results to Object Storage | Correction | Martin Vonach |
| 7 | RO-DPD-205 | RO-DPD-06 | Worklist Query for Repositioning | Correction | Martin Vonach |
| 8 | RO-DPD-206 | RO-DPD-07 | Notify on Radiation Delivery Status Change | Delivery | Thomas Schwere, Sanjay Bari |
| 9 | RO-DPD-207 | RO-DPD-08 | Retrieve RT Patient Position Correction Instruction | Correction | Martin Vonach |
| 10 | RO-DPD-208 | RO-DPD-09 | Subscribe/Unsubscribe to Treat UPS Status | UPS Notification | Thomas Schwere |
| 11 | RO-DPD-209 | RO-DPD-10 | Notify on Radiation State | Delivery | Thomas Schwere, Sanjay Bari |
| 12 | RO-DPD-210 | RO-DPD-11 | Retrieve Positioning Acquisition Results | Registration | Chris Pauers |
| 13 | RO-DPD-211 | RO-DPD-12 | Worklist Query for Positioning Registration | Registration | Chris Pauers |
| 14 | RO-DPD-212 | RO-DPD-13 | Worklist Query for Position Monitoring | Monitoring | Stephen Phillips |
| 15 | RO-DPD-213 | RO-DPD-16 | Store Monitoring Results to Object Storage | Monitoring | Stephen Phillips |
| 16 | RO-DPD-214 | RO-DPD-17 | UPS Final Update at Session Termination | Framework | Thomas Schwere, Sanjay Bari |
| 17 | RO-DPD-215 | RO-DPD-18 | UPS Completed / Cancelled at Session Termination | Framework | Thomas Schwere, Sanjay Bari |
| 18 | RO-DPD-216 | RO-DPD-19 | Indicate Ready for Monitoring | Monitoring | Stephen Phillips |
| 19 | RO-DPD-217 | RO-DPD-20 | Notify Device to start UPS | UPS Notification | Thomas Schwere, Sanjay Bari |
| 20 | RO-DPD-218 | RO-DPD-21 | Create Positioning Acquisition and Positioning Registration UPS | Workflow | Thomas Schwere |
| 21 | RO-DPD-219 | RO-DPD-22 | Create Treat UPS and Radiation Delivery Instruction for Continuation | Workflow | Thomas Schwere |
| 22 | RO-DPD-220 | RO-DPD-23 | Notify Treatment Session Actors on Starting Session | UPS Notification | Thomas Schwere, Sanjay Bari |
| 23 | RO-DPD-221 | RO-DPD-24 | Notify Device to stop UPS | UPS Notification | Thomas Schwere, Sanjay Bari |
| 24 | RO-DPD-222 | RO-DPD-25 | UPS Progress Update for Discrete non-Treatment Steps | UPS Notification | Thomas Schwere, Sanjay Bari |
| 25 | RO-DPD-223 | RO-DPD-26 | Worklist Query for Positioning Correction Reconciliation | Registration | Chris Pauers |
| 26 | RO-DPD-224 | RO-DPD-27 | External Verification | External Verification | Sanjay Bari |
| 27 | RO-DPD-225 | ./. | Notify Device to resume UPS | Monitoring | Stephen Phillips |
| 28 | RO-DPD-226 | ./. | Create new Positioning UPS | Monitoring | Stephen Phillips |
| 29 | RO-DPD-227 | ./. | UPS Final Update after Positioning Information Acquisition | Workflow |  |
| 30 | RO-DPD-228 | ./. | UPS Final Update after Treatment Interruption | Workflow | Thomas Schwere |