

Minutes

Discrete Positioning and Delivery Workflow (DPDW)

Conference Call

October 25, 2022

10:00am – 11:20am ET

DPDW Subgroup Chair:

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IHERO Task Force Co-Chairs

Bruce Curran, MEng, FAAPM, FACMP, FACR
Bridget Koontz, 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.*

In Attendance:

Jill Moton (AAPM)
Gergely Parditka (Brainlab)
Harold Beunk (Demcon)
David Wikler (IBA)
Bruce Rakes (Mevion)
Sanjay Bari (Elekta)
Jon Treffert (RaySearch)
Istvan Matyas (Siemens Healthineers)
Thomas Schwere (Varian)

1 Call to Order

The meeting was started at 10:00am ET.

2 General

- From the Oct 2022 IHE-RO TC F2F meeting minutes:
 - 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 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
 - 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.
 - B) New Profile (or extension of TDW-II) to schedule/deliver of a treatment session, including imaging, position, and delivery
 - 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

3 TDW-II/Imaging

- The group re-discussed the proposal to define a new workitem code including both treatment delivery and setup imaging activities.
- Packing all input objects for imaging and delivery into the Input Information Sequence and all resulting output objects into the Output Information Sequence of a single UPS is a little bit against the principle idea of having dedicated UPS/workitem codes per single activity. Still, the DICOM standard actually foresees the pre-defined combination of activities into a single workitem code (Part 17, GGG.3.2):

GGG.3.2 Complex Procedure Steps

There are cases where it may be useful to schedule a complex procedure that is essentially a grouping of multiple workitems. Placing multiple workitem codes in the Scheduled Workitem Code Sequence is not permitted (partly due to the additional complexities that would result related to sequencing, dependency, partial completion, etc.)

One approach is to schedule separate UPS instances for each of the component workitems and to identify the related UPS instances based on their use of a common Study UID or Order Number.

Another approach is for the site to define a single workitem code that means a pre-defined combination of what would otherwise be separate workitems, along with describing the necessary sequencing, dependencies, etc.

- Usually, the type (and number) of imaging performed for positioning the patient is a clinical decision at the device depending on the actual situation of the patient. Therefore, it's sufficient to communicate the reference image data as part of the Input Information Sequence w/o any additional details (at most the name of an imaging protocol to use may be provided as a scheduled parameter).
- The Input Information Sequence of the UPS does support instance level references only. To not overload the UPS, the group decided to add the RT Structure Set reference to the Input Information Sequence. The image will then be determined from the information in the RT Structure Set. This allows the device to perform 3D CBCT (registered against the 3D reference image) as well as 2D (registered against DRRs dynamically created out of the 3D reference image) positioning use cases.
- In case retrieve AET is different for RT Structure Set and reference image, the AET may be added as a scheduled parameter.
- Grouping of resulting artifacts into treatment sessions can be done by a) checking the Output Information Sequence or b) by checking the Treatment Session UID contained as a new attribute in the resulting artifacts (DICOM CP pending).
- Reconstructing the activities performed at the delivery device will require the TMS to check the content of the resulting artifacts (since there is no dedicated UPS per activity).
- David will draft this new use case as an option to TDW-II.

4 Adjournment

The meeting was adjourned at 11:15am ET.

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).

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](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:

2022.iherodpdw@aapm.org