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MINUTES

WORKING GROUP TWENTY-ONE (Computed Tomography)

Version 2

Date & Time: Wednesday, April 20, 2022
12:00-1:30pm US EST

Presiding Officers: Till Hoenig, Co-Chair, Vendor
Shuai Leng, Co-Chair, User
wg21chairs@dicomstandard.org

Secretary: Shayna Knazik, DICOM/MITA

Voting Members Present:	**Represented by:**
AAPM	Kai Yang
AAPM/Mayo Clinic	Shuai Leng
Canon	Kevin O'Donnell
DICOM/MITA	Shayna Knazik
GE Healthcare	Steve Nichols
Johns Hopkins University	Mahadevappa Mahesh
Siemens Healthineers	Till Hoenig
United Imaging Healthcare	Adam Chandler

Voting Members Not Present:	**Represented by:**
*ACR	Paul Armstrong Hill
Philips	Shlomo Gotman
*PixelMed Publishing	David Clunie

*Not present at two consecutive meetings and therefore not counted for quorum during this tcon

Observers Present:	**Represented by:**
AAPM	Nick Bevins

1. **Opening**
   - **1.1.** The teleconference was called to order and a quorum was not present.
   - **1.2.** DICOM antitrust and patent guidelines were reviewed.
   - **1.3.** The agenda was reviewed and approved.
   - 1.4. The minutes from 16 March 2022 were reviewed and approved.

2. WG-21 Correction Proposals (CPs) Status

CP#	Submission Date	Submitter	Affects DICOM Parts	Assignee	Status	Description	Coded status
1915	2019-02-16	Hoenig	Part 3	Nolte	Suspended	Adapt definition of FocalSpot (0018,1190) to comply with IEC60336 section 8.3	n/a
1196	2011-11-30	D. Clunie	Part 3	D. Clunie	Final Text	Add phantom-specific Total DLP Values to allow for Head and Body in same RDSR scope ofaccumulation	Final Text
<New>		Hoenig	Parts 3/16		New	Publicly document and specify vendor specific CT Image Quality Reference Parameter as a SQ	
2189	2021-10-26	Nichols	Parts 3 and 17	Nichols	Assigned	Add Multi-Energy Image type attribute to the Enhanced CT Image Storage SOP Class	Assigned
2208	2022-01-06	Nichols	Part 16	Nichols	Assigned	Include additional cardiovascular terms to Part 16	Assigned
2209	2022-01-20	Hoenig	Part 3	Nolte	New / submitted to WG-06	Correct Table C.11.1.1.2.1-1 Recommended Rescale Type Assignments for Multi-energy CT Image	Assigned
2232	2022-03-21	Hoenig	Part 16	Nolte	New	Correct/add Body Part Examined Defined Terms in correspondence Table L-1	Assigned
2233	2022-03-21	Hoenig	Part 16	Nolte	New	Switch to SNOMED Code for PHANTOM	Assigned

3. Additional public attribute for CT images, addressing the context "(User selectable) parameter that determines the tube current time product relevant for the image quality"

→ Refer to CTTerminologyLexicon.pdf (aapm.org)

→Kevin provided the Cannon parameters (added to the excel file in meeting folder). Based on that Shuai will now coordinate the parameter consolidation.

4. New CP: "Correct/add Body Part Examined defined terms in correspondence table L-1"

→This CP was presented to WG-06 at their March meeting and was assigned as CP-2232.

5. New CP: "Switch to SNOMED Code for PHANTOM"

→ This CP was presented to WG-06 at their March meeting and was assigned as CP-2233.

6. Create a context group for calcium scoring – CP-2208 from Steve Nichols

→Steve provided an update on this CP and incorporated feedback from WG-21. This is now ready

for this to go back to WG-01.

7. **Image Type for Multi-Energy Enhanced CT images – CP-2189 from Steve Nichols**
   → Steve presented the survey results and reviewed MR examples to WG-06. It was a short discussion with WG-06 and they provided some feedback on an enhanced compared to classic table. The group felt it was important to reference the values from Part 3, Table C.8.2.1.1.1. Additional feedback was provided on Steve's draft text.

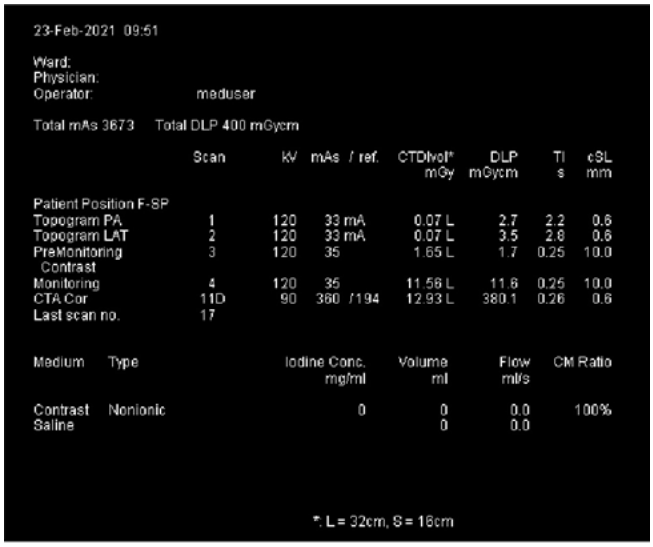
8. **Supplement 182: Curved MPR (Steve Nichols)**
   →Steve reported that on the DICOM Standard Committee call yesterday, the group discussed and agreed to formally cancel this Supplement (as supported by WG-17 and WG-21). This item can be removed from future agendas.

9. **Dose Management: Patient Protocol (Black Image) vs. RDSR**
   →WG-21 discussed Kevin's draft Dose Display CP for IHE Rad which describes the "Summary Display Option" and the "EMR Extract Option".
   → It was noted that we don't want to take every single value of RDSR from all vendors. There is a need to have some summary level information but it can't be completely comprehensive. kV and a mA range might be the next place to start. If the goal of Kevin's display option is to take an existing RDSR and populate a standard viewer, a lot of these values aren't mandatory for an RDSR and won't be there. It would be good to have a quick snapshot of vital kV, mA, CTDI to standardize the format of that page. If there is a potential to include more information that's great, but it's not possible to fully capture everything. The information source should be the RDSR and this could potentially be extended.
   →The next step should be to crosscheck what is in the IHE CP and the current RDSR then go from there.
   → Shuai reminded the group that a list was already created on the summary dose values and troubleshooting relevant values, which was contributed to by Kai, Nick, and Mahesh:

   <u>Information to be included in patient protocol page</u>
   - Patient Name and Clinical Number
   - Exam Date and Time
   - Scanner identifier
   - Total mAs or Total radiation time
   - Scan sequence (e.g. Radiographic Localizer, Sequential/Helical/Spiral scan, Monitoring scan etc)
   - Scan #
   - kV
     - For scanners with automatic kV selection (e.g. CareKV, kV Assist etc), this should include reference kV that was set up, and the true kV that is used in the scan
   - mA related information
     - This is vendor dependent, some uses mA, some uses effective mAs
   - AEC/TCM related information
     - This is vendor dependent. For example, some vendors may use 'NI/SD + upper/lower limit of mA', other vendors may use 'Quality reference mAs'. A complete list can be built for each vendor.
   - CTDIvol for each scan, including phantom size
   - DLP for each scan, including phantom size

- Rotation time
- Collimation
- Helical pitch
- Size specific dose estimate (SSDE), the averaged value in scan range
- Water equivalent diameter (Dw), the averaged value in scan range
- Scan range (mm), start location, end location (couch position)

Example Patient Protocol snapshot:



23-Feb-2021 09:51

Ward:
Physician:
Operator: meduser

Total mAs 3673 Total DLP 400 mGycm

	Scan	kV	mAs / ref.	CTDIvol* mGy	DLP mGycm	TI s	cSL mm
Patient Position F-SP							
Topogram PA	1	120	33 mA	0.07 L	2.7	2.2	0.6
Topogram LAT	2	120	33 mA	0.07 L	3.5	2.8	0.6
PreMonitoring Contrast	3	120	35	1.65 L	1.7	0.25	10.0
Monitoring	4	120	35	11.56 L	11.6	0.25	10.0
CTA Cor	11D	90	360 /194	12.93 L	380.1	0.26	0.6
Last scan no.	17						

Medium	Type	Iodine Conc. mg/ml	Volume ml	Flow ml/s	CM Ratio
Contrast	Nonionic	0	0	0.0	100%
Saline			0	0.0	

*: L = 32cm, S = 16cm

➔ Till provides a mapping of above listed parameters to currently existing RDSR parameters (incl. information about mandatory/optional) as a base for further considerations.

10. **WG-06 requested WG-21 to review technical content of HL7 imaging procedure radiation exposure project**
    https://confluence.hl7.org/display/IMIN/Radiation+Dose+Summary+for+Diagnostic+Procedures+on+FHIR
    →This will be incorporated based on what we come up with for item 9 (Dose Management: Patient Protocol (Black Image) vs. RDSR).
    →The group discussed what should be populated in the EMR Extract Option, including procedural things like site dose management details of scan performance. It would be helpful to have a call with AAPM and HL7 members. Nick noted that WG-02/28 hopes to have WG-20 members on their June teleconference.

11. **Old Business**
    →New CP by Siemens CT: "Extend Table E.3.10-1. Safe Private Attributes" – on standby while Siemens consolidates.
    →Dose metrics display in fluoroscopy – on standby until Mahesh brings this back to WG-21 (Mahesh asked for the group's opinions back in March 2021 on system display 'mGy-cm2' only instead of many different other units. Next steps: Mahesh will talk to IAEA and will report back to WG-21.)

12. **Upcoming meetings:**

→WG-21 usually meets the 3rd Wednesday of each month from 12-1:30pm US Eastern. The next call is scheduled to take place on May 18, 2022 from 12-1:30pm US Eastern, but the group noted several conflicts with this date. The call will instead take place on **May 25th from 12:00-1:00pm US Eastern.** It was noted that a 60-minute call will be sufficient given the amount of items that were closed on today's call.

13. Adjournment

→The WG-21 monthly call was adjourned at 1:35pm US Eastern.

Prepared and submitted by Shayna Knazik
Reviewed by counsel 6/1/22