

FDG-PETCT Technical Committee Subcommittees Progress to Date (summary version)

Software Version Tracking – Ling Shao

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- Objective:** To track the traceability of SW version of a PET/CT system to ensure the consistency of quantitative output through out the trial
 - Rational: Due to the continuous improvements of current PET/CT systems, vendors will upgrade software in different part of sub-systems from time to time for the same system. Some of upgrades will include quantitation improvements
 - Essential SW Version to be tracked: Three major SW in the quantitative imaging chain should be tracked: Acquisition (include detector), Reconstruction (may combined with acquisition) and Quantitation Tool
 - Approach:
 - Short team: Manual Tracking (available now)
 - Long Term (TBD): 5-8 Years: Fully DICOM Tracking (New DICOM attributes needed); 8 Years Beyond: One-button SW Tracking Function (Industry guideline - vendors to do it)

* Some sites use third party Display/Quantitative Tools, which further complicate the tracking

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1. Short term: Manual Tracking
 - Status: Currently, every vendor should have the ability of obtaining the version info each software installed.
 - Action: Send out a survey to vendors for instructions to check the SW version (Acquisition, Reconstruction, Quantitative Tool. Some vendors provide multiple reconstruction methods)
2. Fully DICOM Tracking (5-8 Years) - TBD
 - Status: Currently only the attribute for acquisition SW version may exist
 - Action: Work with other committees to define a global recommended list of DICOM attributes needed for quantitation purpose
 - Working with DICOM committee to define the timeline for implementing the list
3. One-button SW Tracking Function (8 Year beyond) -TBD
 - Status: Currently, vendors provide tools to view all/most DICOM Info, but, most info which impact quantitation are missing (No DICOM Attributes): The goal is for vendors to provide a one-button function in the quantitative tool to display all quantitative related info.
 - Action:
 - I. Define what are the quantitative info to be recorded (DICOM)
 - II. Develop guidelines (working with NEMA ??)
 - III. Compliance Steps

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2. Current status
 - Subcommittee formed
 - Draft of Survey circulated in Subcommittee
3. Specific tasks planned
 - Subcommittee meeting scheduled for reviewing survey
 - Send survey to vendor for info
 - Subcommittee Review
4. Resources needed
 - TBD

Appendix

Discussion points

SW Version Tracking Specifics

1. Scanner to be surveyed
 - Every scanner in the market for the last 5 years
2. Who knows these information best
 - Application specialist/Customer support engineer
3. For workstation side, only the display tool which is used for SUV calculation or for quantitation needs to be tracked
4. Third party display tool: Does this belong to this subcommittee?

Other issues that the QIBA need to consider

1. Should we define a standard phantom (known structure) –
 - Used to align the protocols from different vendors by adjusting different recon parameters to matching the same/close image quality
 - Repeat QI phantom (Quantitative criteria) every time there is change to the scanner
 - Site physicist task or vendors task
 - IEC NEMA could be a good
2. Record Recon Method and parameters used (MLEM, OSEM, FBP, iteration, filtering, etc)
3. What about Count-rate dependence on quantitation (SUV)?
4. List all new DICOM attributes request

Discussion for the next week

- Review the survey
- Clarify the requirements for Stage II and Stage III SW version control requirement
- List the DICOM attributes required for SW version tracking

Draft of Survey (updated 3/9/09)

Vendor Name:

(Create one survey for every scanner in the market for the last 5 years)

Scanner Name:

SW Type	Step-by-Step instruction for obtaining version Number	Version Number	New Phantom Calibration Required (Y/N)	Comments	
Acquisition SW (In DICOM Header)	1. XXX	XX	Y/N		
	2. XXX	XX			
	3. XXX				
Reconstruction SW (Not in DICOM)	1. XXX				
	2. XXX				
	3. XXX				
Display/Quantitation tool: Workstation Name : _____ SW Package Name : _____ (Not in DICOM, May be third parity SW)	1. XXX				
	2. XXX				
	3. XXX				

Draft of Survey

Vendor Name:

Scanner Name

SW Type	Step-by-Step instruction for obtaining version Number	Version Number	Repeat QI phantom (Quantitative criteria) –site physicist task, Vendor do the test (IEC NEMA is good)	Comments Count-rate dependence	Recon Method (iteration, filtering, - standard for future)
Acquisition SW	1. XXX				
	2. XXX				
	3. XXX				
Reconstruction SW	1. XXX				
	2. XXX				
	3. XXX				
Display/Quantitation tool (non-DICOM)	1. XXX				
	2. XXX				
	3. XXX				