QIBA fMRI Biomarker Committee (BC) Call

Wednesday, February 7, 2018 at 11 AM CT

Call Summary

In attendance			**RSNA**
Jay Pillai, MD (Co-chair)	Ted DeYoe, PhD	Yunhong Shu, PhD	Joe Koudelik
David Soltysik, PhD (Co-chair)	Nancy Obuchowski, PhD		Susan Weinmann

Review of Previous Call Summary

- The 01.24.18 call summary was approved as presented

QIBA Checklist: fMRI Center of Mass Estimation for presurgical Assessment (fMRI-CMA)

- With help from Drs. Elsinger, Pillai and Soltysik, and using the CT Volumetry checklist as a reference, Dr. Mohamed drafted an fMRI checklist which can be found on the QIBA Wiki at: http://qibawiki.rsna.org/images/3/35/QIBA_CVol_TumorVolumeChangeChecklist-20161205_-_Field_Test_version_1.0.docx
- Overall rationale for the checklist and how fMRI BC plans to address general comments regarding Profile v1.0 was explained by Dr. Pillai
    - Dr. Elsinger will be triaging the low, medium and high priority comments for committee review

- Differing requirements for site conformance vs. actor conformance discussed, e.g. sites required to generate test-retest data
- Assessment procedures divided into subsections by actor type; each actor to have required performance tests to pass to prove conformance
- Method-to-measure conformance to be provided
- The Profile user needs to:
    - Be able to acquire data from the scanner that matches the QA measurement data within QIBA Profile specifications
    - Demonstrate that center-of-mass calculation is within QIBA Profile specifications (can be assessed using DROs rather than acquired empirical data)
    - Assess bias and repeatability using the data provided

- Focus of discussion was on computing Center of Mass of Activation (CMA) repeatability
- Statistical assumptions underlying current fMRI Profile v1.0 Claims:
    - Certain repeatability is assumed
    - There is no bias in determination of center of mass

- Two stages of feasibility-testing:
    - Sites test Claims
    - Manufacturer tests to see if scanner is conformant

- As action items for future discussion by the fMRI BC committee, Dr. Pillai suggested the following in order to complete the checklist draft:
    - Need to determine consensus methodology for selection of an appropriate ROI for primary motor activation per current Profile claims
    - Need to determine the optimal statistical thresholding approach to include, e.g. 50-60% AMPLE normalization suggested
    - Need to determine acceptable within-subject repeatability metrics, e.g. 5mm variability between subjects has been suggested

Next calls:

- QIBA fMRI Bias TF call – Tuesday, February 13, 2018 at 1 PM CT---focus will be on continuation of discussion of the checklist (Dr. Voyvodic will discuss some of his motor reproducibility data in this context)
- QIBA fMRI Biomarker Committee call – Wednesday, February 21, 2018 at 11am CT

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