

## QIBA fMRI Biomarker Committee (BC) Call

Wednesday, August 9, 2017 at 11 AM CT

Call Summary

### In attendance

*Ted DeYoe, PhD (Co-Chair)*

*Jay Pillai, MD (Co-Chair)*

*James Reuss, PhD (Co-Chair)*

Edward Jackson, PhD

Andrew Kalnin, MD

Feroze Mohamed, PhD

Nancy Obuchowski, PhD

David Soltysik, PhD

### RSNA

Joe Koudelik

Susan Weinmann

### Review of Previous Call Summary

- The 7.26.2017 call summary was approved as presented

### Profile 1.0 Status

- Public comment progress
  - No comments received to date (after ~2 months)
  - RSNA Staff to send a reminder to 1,000+ QIBA members, 100+ sister associations and SMEs after message is confirmed by fMRI BC leaders
  - Dr. Pillai reached out to ASFNR Executive members for additional feedback
    - Suggestion to extend public comment period to mid-October to allow for ASFNR membership feedback (expected during and immediately after the ASFNR annual meeting on October 9-11)
    - Personalized list of SMEs to be supplied by BC leaders
    - Dr. Mohamed to reach out to key contacts at ISMRM, possibly reach out to OHBM

### Profile 2.0 Language Mapping (Dr. Reuss)

- Literature search is underway; searches can be annotated and articles posted at:  
<https://drive.google.com/drive/folders/OB6So9x1DSqdaZG1NbG5IbHNCU3c?usp=sharing>
  - To request editing privileges, contact: [qiba.fmri@gmail.com](mailto:qiba.fmri@gmail.com)
  - Dr. Mohamed's grad student compiled papers to be uploaded
  - fMRI BC members were encouraged to add other search strategies to the fMRI Google Drive folder
- Claim development discussion
  - Boundary Claims
    - Comparing boundaries
    - What is the measurand? Volume (in terms of spatial extent)?
    - Weizman article (on fMRI Google Drive) discusses boundary assessment
  - Claims to be built around center-of-mass in language areas, laterality measures and spatial extent of activation---issues of statistical thresholding as well as region of interest (ROI) determination need to be considered (issues of functional specificity and sensitivity were discussed)
  - The degree of measurement reproducibility will be the focus
  - Dr. Obuchowski to assist with Claims development

- Decision made to title the language Profile as v1.0 Language-Mapping Profile (v2.0 deemed confusing)
- White paper on language-mapping paradigms for which Drs. Pillai and Welker are senior authors was accepted by ASFNR [online publication date likely to be in October]
- Verb generation task suggested as alternative to silent word generation task
- Drs. Pillai and Voyvodic to touch base in mid-August to prepare publications related to Round-5 QIBA funded DRO projects
- Biomarker needs to be defined with the Claims
  - Claim 1 focuses on scalar/ coordinate measurands
  - Claim 2 focuses on spatial activation/3D boundary comparison
    - Challenge to reconcile Claim 2 with quantitative imaging biomarker definition
    - “Ratio or interval scale” = has to be a number; difficult to define boundary (& surfaces) as a single number or set of numbers
    - Tumor growth is scalar that can be tracked as a volume
    - Nearest point of impingement...
- Discussion on addressing thresholding issue
  - Ways to threshold for a clear boundary from which to compute
  - Spatial extent dependent on threshold
  - Definitions of threshold needs to be part of the Claim
  - Discussion on whether volume is a viable biomarker in light of pragmatic neurosurgical considerations such as gyral margins, and how ROIs can be best selected (Broca’s & Wernicke’s area vs. larger expressive & receptive regions including DLPFC, pre-SMA, MTG, Geschwind’s area, etc.)
  - Consider if well-defined biomarker could extend precision in future
- Decision to be made on what to measure, verify whether it is measurable and determine how to measure it
- fMRI BC members encouraged to visit fMRI Language Profile and add comments

➤ **If you plan to attend the 2017 RSNA Annual Meeting, the QIBA Working Meeting will be held on Wednesday, November 29, 2017, 2:30 – 5 PM**

**Next calls:**

- QIBA fMRI Bias TF call – Tuesday, August 15 at 1 PM CT
- QIBA fMRI Biomarker Committee call – Wednesday, August 23 at 11am CT

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