In attendance   **RSNA staff**

Feroze Mohamed, PhD (Co-chair)	Ichiro Ikuta, MD, MMSc	Judd Storrs, PhD	Susan Stanfa
Jay Pillai, MD (Co-chair)	Andrew Kalnin, MD	James Voyvodic, PhD	
David Soltysik, PhD (Co-chair)	Ho-Ling (Anthony) Liu, PhD	Yuxiang Zhou, PhD, DABR	
Shruti Agarwal, PhD	Nancy Obuchowski, PhD		

Review of Previous Call Summary

- The 03.17.2021 call summary was approved as presented

fMRI Language-Mapping Profile v2.0: Decisions to be Made

- A list of decisions that need to be made was reviewed; the fMRI BC cannot proceed with Claim development and Profile-writing until consensus is reached

1. Language systems to study: expressive and receptive language systems

2. ROIs to include:

- Broca's and Wernicke's areas to be the focus for localization, but ROIs for laterality are undecided
- It needs to be determined whether to include threshold-dependent or threshold-independent approaches for determination of laterality indices (LI)
- Dr. Voyvodic used an AMPLE-based approach for thresholding and his own methods for ROI selection (Broca's and Wernicke's areas), but did not include all areas involved in the language network
- Dr. Voyvodic used 50% AMPLE thresholding and did not resort to thresholding-independent approaches
- Recommendation to include region-specific ROIs for LIs, as they may be more reproducible

3. fMRI data to inform Claims

- Since fMRI BC efforts shifted from Motor-Mapping Profile v1.0 to Language-Mapping Profile v2.0 in the summer of 2019, a literature review has been conducted and numerous articles have been discussed during calls
- The fMRI BC has discussed all factors extensively but have yet to reach consensus
- Published data are problematic and language Claims cannot be based on them, however, Dr. Voyvodic's data were deemed sufficient for Claim development
- It would be ideal to be able to cite references to support values chosen for the Claims
  - To avoid delays in Profile progress due to a lengthy peer review process, Dr. Pillai suggested that an alternative was to cite a pre-print of Dr. Voyvodic's work
  - It was noted that that these data will likely be published long before the Profile would be ready for public comment (stage 1)

4. Claim development

- Recommendation to begin drafting Claim language based on Dr. Voyvodic's data
- A standard in QIBA is to set Claims at 95% confidence, however, different confidence rates for different measurements could be considered
  - With comparison maps that agree, confidence interval can be higher
  - Within some regions, e.g., Wernicke's area, Dr. Voyvodic was able to reach 95% confidence on the sentence completion task
  - Although ground truth (and bias) is not known for LI, Dr. Voyvodic looked at rigorous reproducibility and obtained data with 95% confidence intervals: LI (-1.0 - >1.0) – within 0.6 of true LI

- Suggestion to also include less Claims rigor with a 90% WcV and possibly 80%, adjusting the values accordingly
- Dr. Obuchowski agreed that the fMRI Profile has justification to include these lower confidence intervals

5. Image quality assurance and image processing methodology
- Dr. Voyvodic provided a summary of his language-mapping study methodology
- Dr. Agarwal to discuss on the next call a previously published Human Brain Mapping (HBM) paper that Dr. Pillai had discussed on an earlier QIBA fMRI BC call pertaining to language repeatability

Plans for April 21 fMRI BC Meeting
- LI/reproducibility data to be discussed and Dr. Voyvodic will review his language-mapping study results
- Dr. Agarwal to review the previously discussed 2018 HBM paper, which used an alternative approach for assessment of LI variability and center of mass variability and alternative approach to ROI determination based on different atlas-based parcellation; the fMRI BC will compare approaches and discuss the pros/cons of each
- The goal will be to make decisions on ROIs, Claim development, and image quality assurance and processing methodology
- Profile-related action items to be determined

Next call: Wednesday, April 21, 2021 at 11 a.m. CT (1st & 3rd weeks of each month)