

QIBA fMRI Biomarker Committee (BC) Call

Wednesday, October 2, 2019 at 11 AM CT

Call Summary

In attendance

Feroze Mohamed, PhD (Co-chair)

Jay Pillai, MD (Co-chair)

David Soltysik, PhD (Co-chair)

Andrew Kalnin, MD

Ho-Ling (Anthony) Liu, PhD

Nancy Obuchowski, PhD

James Voyvodic, PhD

RSNA staff

Joe Koudelik

Susan Stanfa

Moderator(s): Dr. Pillai

Review of Previous Call Summary

- The 09.18.2019 call summary was approved as presented

QIBA Posters at RSNA 2019

- A broad, high-level perspective regarding the impact of quantitative imaging (QI) is the goal for 2019 QIBA Kiosk posters vs. the technical updates as done in the past
- The 2019 posters will be modality-based, rather than BC-based
- Posters with less text and more images (clean space) highlighting specific use cases for QI (both clinical and research) to be developed
- Since Profile v2.0 (language) efforts have just begun, fMRI may have minimal content to submit this year
- The fMRI BC to submit content illustrating the added value of QI in fMRI
 - Advantages of improved fMRI reproducibility for clinical trials and patient care to be highlighted
 - “Value-add”/impact statements to be made for QI and accompanied by supporting images
- The four MR CC Co-chairs (Drs. Boss, Elsinger, Rosen and Zahlmann) are overseeing the poster development process, with Drs. Boss and Rosen organizing the layout
- Suggestion to not only illustrate how fMRI is currently being used, but to focus on making it more reproducible
- With language-mapping, only minimal Profile impact expected if the proposed resting-state (r-s) project is not funded (via Pharma/iCROs); if it does get funded, the door to more universal applications may be opened
- It was noted that fMRI functional connectivity efforts are currently being focused on task-based vs. r-s data, which has many confounds
- The language network deemed important, as it is a conglomeration of different r-s networks; any guidelines offered re: acquisition, analysis and reporting would be useful due to scalability making the Profile more appealing to end users
- Discussion re: whether making language-mapping quantitative adds value
 - Reproducibility is essential in research and clinical use, and the Profile is serving an important need
 - Validity of BOLD mapping in general is being supported with the Profile and may make adoption of the method more likely
 - Unless reproducibility is improved (rather than merely demonstrated/measured), the Profile will not be valuable
 - Users may be convinced to perform their imaging methods quantitatively as a result of the Profile

- Discussion re: fMRI practice patterns
 - Very few clinical practice sites are using fMRI due to inconsistent results, hindering widespread adoption
 - Sites that do perform high-volume fMRI could benefit from the guidance provided by the Profile
 - It was noted that in 2017 or 2018, the American Society of Neuroradiology (ASNR) conducted a survey to assess current fMRI practice patterns
 - Results may be publicly available via an online repository
 - The findings indicated that very few sites perform high-volume fMRI
 - Dr. Pillai to try to locate these data for fMRI BC review
 - This was a one-time assessment and there are no plans to collect data on an ongoing basis
 - ASNR deemed a reasonable source for fMRI r-s use data
- It was suggested that results from the following two language-mapping reproducibility/repeatability/reliability studies be included on the poster, however, there will be space limitations and dense text and methodology are discouraged:
 - Voyvodic J. [Reproducibility of single-subject fMRI language mapping with AMPLE normalization](#). J Magn Reson Imaging. 2012.
 - Agarwal S, Hua J, Sair HI, Gujar S, Bettgowda C, Lu H, and Pillai JJ. [Repeatability of language fMRI lateralization and localization metrics in brain tumor patients](#). Hum Brain Mapp. 2018.
- One example of demonstrating impact would be to explain how the Profile will change the way fMRI is used diagnostically in clinical practice, or during clinical trials
- Dr. Pillai to draft 1 or 2 bullet points on the impact of quantitative language-mapping and how the fMRI Profile will improve patient care and reproducibility
- Discussion re: fMRI poster content to be continued during the Oct. 16 fMRI BC call

Profile v2.0 (language-mapping)

- Dr. Liu, v2.0 Profile editor, provided a progress update
 - Text is being copied from v1.0 and pasted into v2.0 where applicable
 - Currently on Section 3; progress will be limited until Claims are developed
- A literature search and a review of repeatability studies are underway
- A volunteer is needed to draft a Claim construct that can be used as a starting point for Claim development
- Suggestion to develop 1-2 Claims based on data already acquired during the following two reproducibility/repeatability/reliability studies of language fMRI (Voyvodic and Agarwal papers cited above), as well as additional applicable studies
- fMRI BC members were asked to obtain additional language-mapping papers to be reviewed and discussed during upcoming fMRI BC calls
- An agenda for the Oct. 16 fMRI BC call to be drafted and submitted to staff for circulation
 - Language manuscripts for discussion
 - MR poster for RSNA Kiosk update
 - Claim construction/drafting

Update on Potential fMRI BC Groundwork Project Submission to Pharma/iCROs

- The "Reproducibility of task-free (resting-state) fMRI as a clinical brain biomarker," project description was submitted to 39 Pharma/iCRO contacts in May
- PIs included: Jay Pillai, MD (Johns Hopkins University), Ho-Ling (Anthony) Liu, PhD (UT MD Anderson Cancer Center) and James Voyvodic, PhD (Duke University)
- One iCRO, inviCRO, has responded to QIBA leadership with interest, and a follow-up call has been scheduled

Reminder:

- Please [RSVP for the Dec. 4 QIBA Working Meeting](#) during the 2019 RSNA Annual Meeting
- Please [sign up for the RSNA 2019 MTE Sessions](#) at the QIBA Kiosk:
 - Type in your name next to the presentation time slot that works for you (we encourage that each 30-minute time slot is filled by at least one committee member)
 - Simply close out of the document (there is no save button and changes will automatically save)

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Next call: Wednesday, October 16, 2019 at 11am CT (1st & 3rd weeks of each month)

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