

## QIBA fMRI Biomarker Committee (BC) Call

Wednesday, April 3, 2019 at 11 AM CT

Call Summary

### In attendance

Jay Pillai, MD (Co-chair)

David Soltysik, PhD (Co-chair)

Cathy Elsinger, PhD

Ping Hou, PhD

Andrew Kalnin, MD

Ho-Ling (Anthony) Liu, PhD

Nancy Obuchowski, PhD

James Voyvodic, PhD

Chuan Zhou, PhD

Yuxiang Zhou, PhD

### RSNA staff

Joe Koudelik

Susan Stanfa

**Moderator: Dr. Soltysik**

### Review of Previous Call Summary

- The 03.20.2019 call summary was approved as presented

### New Member

- Dr. Chuan Zhou, PhD, who works with Dr. Thomas Chenevert, PhD (University of Michigan), was introduced
- Primarily involved with Diffusion-Weighted Imaging (DWI-MR), but also uses fMRI to help identify post-treatment changes

### Potential fMRI BC Groundwork Project

- The Sustainability Implementation Group (SIG) has requested that by April 15<sup>th</sup>, all QIBA CCs provide up to three groundwork projects that would help advance the current Profiles
- Staff distributed a template for submitting project descriptions to all QIBA CC and BC Co-Chairs (Project title, PI, rough budget, 3-4 sentence description will need to be submitted - a half page maximum)
- Committee consensus was that Resting State fMRI (rs-fMRI) was the top choice for this submission; fMRI BC members discussed quantitative aspects of resting state analysis, and how this could be applied to neurodegenerative disease and clinical trials
- Following the March 20 fMRI BC call, committee members were asked whether they have rs-fMRI and task-based data on the same patients (language or motor), and whether they would be willing to share these data for the group projects
- Dr. Pillai circulated a first-draft project description prior to the call as a starting point for discussion
  - Dr. Voyvodic provided edits and a reminder that it needs to be shortened to ½ page, as only the concept is requested at this time
  - Budget amount proposed by fMRI BC to be considered an upper limit that would be divided among multiple sites to include salary support and additional expenses
    - Proposed was a scalable project, large enough in scope so that if needed, it could be scaled back to accommodate less funding but still remain useful (the project plan could be adapted and still move the Profile forward)
  - It was stated in the draft description that most of the study would use existing scan data, but some of the funds would be used for acquisition of new volunteer (or patient) data
    - Advantage of using rs-fMRI is that multiple neural networks can be interrogated in a single image acquisition session
    - This will allow analysis of multiple networks beyond language alone, which may be valuable for longitudinal intervention studies.

- rs-fMRI details to be incorporated into existing v1.0: Motor-Mapping Profile or v2.0: Language Mapping Profile; no separate Profile needed
- The proposed project should advance the progress of only an *existing* Profile
- Discussion regarding possible PIs
  - Dr. Voyvodic volunteered to work on a project, if based on language-mapping; not motor-mapping
  - Dr. Yuxiang Zhou indicated interest
  - Dr. Hou has patient data to contribute
  - Dr. Elsinger cannot contribute data, but is able to assist with other tasks, e.g., from the software industry side
- Resting state Sensorimotor Network (SMN) to be used as a simple network for investigation; in principle, findings pertaining to reproducibility of SMN could be applied to any other brain network of interest.
  - The proposal will be updated to include SMN, language, Default Mode Network (DMN) and other brain networks
- Access to patient repeatability data needed; fortunately, publicly available databases do exist
- Project should demonstrate how rs-fMRI compares quantitatively with task-based sensorimotor & language fMRI
  - Suggestion to first focus on reproducibility of resting state, and then compare to task fMRI
  - If the aim is to obtain funding and to make resting-state useful for longitudinal evaluation, the focus should be on reproducibility of rs-fMRI
  - Concrete examples of brain networks for which ground truth can be assessed need to be provided; standardization of all aspects of rs-fMRI acquisition and data analysis across imaging sites and studies is needed
  - The overall benefit to pharma needs to be emphasized in the project description
  - Dr. Liu to edit the proposal and submit to staff for circulation

**Next calls:**

- QIBA fMRI Biomarker Cmte call – **Wednesday, April 17, 2019** at 11am CT - 1<sup>st</sup> & 3<sup>rd</sup> weeks of the month
- QIBA fMRI Bias TF call – **Tuesday, April 9, 2019** at 1 PM CT - 2<sup>nd</sup> & 4<sup>th</sup> weeks of the month

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