

## QIBA fMRI Biomarker Committee (BC) Call

Wednesday, August 5, 2020 at 11 a.m. (CT)

### Call Summary

#### In attendance

Feroze Mohamed, PhD (Co-chair)

Jay J. Pillai, MD (Co-chair)

David Soltysik, PhD (Co-chair)

Shruti Agarwal, PhD

Cathy Elsinger, PhD

Ping Hou, PhD

Ichiro Ikuta, MD, MMSc

Ho-Ling (Anthony) Liu, PhD

Nancy Obuchowski, PhD

David Scott, PhD

James Voyvodic, PhD

Francisco Zamorano, PhD

Yuxiang Zhou, PhD, DABR

#### RSNA staff

Joe Koudelik

Susan Stanfa

#### Review of Previous Call Summary

- The 07.15.2020 call summary was approved as presented

#### Discussion Continued on Elliott ML, et al., [What Is the Test-Retest Reliability of Common Task-Functional MRI Measures? New Empirical Evidence and a Meta-Analysis](#), published in *Psychological Science*

- The fMRI BC had been discussing a rebuttal to the editor of Association for Psychological Science (APS) claiming that the conclusions are incorrect
- Following the July 15 call, Dr. Ikuta contacted Dr. Bauer, the Editor-in-Chief of *Psychological Science* and received a response with the following points:
  - One commentary on Elliott et al. was already submitted and a proposal was approved for a second one
  - It was stated that, “it would be extremely unlikely that we would publish three commentaries on the same article”
  - The editorial planned by Dr. Scott would not be accepted unless notification to the contrary were to be received from Dr. Bauer
- The fMRI BC decided to shift efforts toward drafting a broader position paper on the utility of fMRI in a clinical setting; the focus will be on fMRI reproducibility and its usefulness for presurgical planning/mapping
  - The issues of validation and standardization should be addressed, since fMRI has made considerable progress in these areas for pre-surgical mapping and use in clinical trials

#### Dr. Voyvodic's Round-1 DRO Project

- During the July 15 fMRI BC t-con, it was recommended that an analysis of DRO data from multiple sites be submitted for publication; the fMRI BC to discuss study results (e.g., what were the findings other than variable workflow) and form a plan
- In this DRO study, eight groups analyzed the same bilateral hand motion and language scan data within the context of neurosurgical planning; another sentence task was also analyzed
- Clinical sites differed in software packages, algorithms used, and statistical thresholding methods; there was also variation among sites in the application of normalization, which may have impacted the results
- The study had been halted due to a multitude of normalization methodologies utilized across these sites
- It was noted that the variability resulted from how data were analyzed and was not inherent in the data itself; it can also be reconciled
- With four of the analysis methods, registrations were correct and agreed with original maps
- All eight sites were sent a survey re: their methodology and seven of them returned descriptive information

- Dr. Voyvodic requested feedback re: the approach to drafting the paper, as this is a multi-site venture
  - Data to include to be determined
  - Though different programs and algorithms were used, standards in technique were very similar
  - Additional discussion needed re: registration issues and whether the cause was technical or due to differences in methods used by sites to perform registration
  - Decisions need to be made re: what information to present and include in tables

### Action Items

- Dr. Voyvodic to contact representatives at the various study sites (Drs. DeYoe, Elsinger, Mohamed, Petrella, Pillai, Reuss, Welker, and Zhou)
- Registration issues and types of statistics to generate to be discussed during upcoming fMRI BC calls
- In preparation for the Aug. 19 call, Dr. Voyvodic will focus on ensuring that all of the thresholding issues are sorted out

**Next call:** Wednesday, August 19, 2020 at 11 a.m. CT (1<sup>st</sup> & 3<sup>rd</sup> weeks of each month)

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