

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 (1st & 3rd weeks of each month)

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