QIBA fMRI Biomarker Committee (BC) Call
Wednesday, September 5, 2018 at 11 AM CT
Call Summary

In attendance   **RSNA staff**

Feroze Mohamed, PhD (Co-chair)   Ping Hou, PhD   Kiran Talekar, MD   Joe Koudelik

Jay J. Pillai, MD (Co-chair)   Edward Jackson, PhD   Jim Voyvodic, PhD   Susan Stanfa

Cathy Elsinger, PhD   Ho-Ling (Anthony) Liu, PhD

Review of Previous Call Summary
- The 08.22.18 call summary was approved as presented

Poster for QIBA Kiosk at RSNA Annual Meeting
- Discussion focused on how to address the different aspects of the coregistration issue:
    o Best practices according to the literature
    o Application to clinical fMRI
    o Pros and cons of automatic coregistration
    o Algorithms used
    o How to perform manual inspection and adjust the registration when automatic registration is inadequate
    o Best registration method
    o How to do perform quality control

- Dr. Elsinger to forward paper: "New method for improving functional-to-structural MRI alignment using local Pearson correlation," as published in *Neuroimage* to RSNA staff for distribution to all fMRI BC members
- Further study regarding local correlation and how it is conducted is needed; specifying algorithms to use and the starting/original images (set) was suggested
- Dr. Voyvodic explained the process of his discovery while completing his motion DRO analysis project, that different methods of coregistration across sites leads to significant variability; he plans to submit the project results for publication
- Because there is no industry standard for optimal coregistration, QIBA acceptable methods are to be specified in the fMRI Profiles
- Coregistration deemed a greater confounder / dominant factor for fMRI than for DCE, DSC and DWI groups
    o In clinical practice, coregistration is a much bigger issue with Blood Oxygenation Level Dependent (BOLD) imaging than the other MR techniques
    o Dr. Voyvodic explained how he discovered that coregistration was a significant source of variability during his Round 1 DRO project

- Suggestion to include before/after registration images on poster
- Additional discussion needed on quality assessment so that variance in coregistration methods can be understood; guidance on assessing quality of coregistration to be provided in the Profile
- Agreed to evaluate the scope of the coregistration issue based on data and determine the most appropriate method for addressing it

Announcements/Next Steps

- RSNA staff to send reminder to core fMRI BC members to review check list and prepare questions and issues for discussion during the September 19 fMRI BC t-con
  - The October 15 deadline allows at least 3 months for feedback from core fMRI BC members
  - RSNA staff to send an additional reminder 1 week prior to the deadline

- Dr. Mohamed reported that Dr. Kiran Talekar from Thomas Jefferson University has been added to the fMRI BC roster
  - Dr. Talekar stated that he is familiarizing himself with QIBA concepts and terminology
  - Dr. Mohamed to discuss the checklist with him offline

- Suggestion to focus on Local Pearson Correlation coregistration method paper during the September 19 t-con
- Hope to have content for poster, based upon discussion during upcoming fMRI BC t-cons within the next month

Next calls:

- QIBA fMRI Bias TF call – Tuesday, September 11, 2018 at 1 PM CT
- QIBA fMRI Biomarker Committee call – Wednesday, September 19, 2018 at 11am CT