QIBA fMRI Technical Committee Update

Wednesday, February 15, 2012 at 11 AM CST

Call Summary

In attendance			**RSNA**
Cathy Elsinger, PhD (Co-Chair)	Brian Lenoski, MS	David Soltysik, PhD	Joe Koudelik
Jeffrey Petrella, MD (Co-Chair)	Feroze Mohamed, PhD	Daniel C. Sullivan, MD	Julie Lisiecki
Paul Carson, PhD	Jay J. Pillai, MD	James Voyvodic, PhD	
Barbara Croft, MD	Laura Rigolo, MS	Domenico Zaca, PhD	

QIBA fMRI Technical Committee Call Agenda

General Items:

- QIBA fMRI/DICOM WG 16 (Dr. Reuss requested feedback via email)
  Julie circulated an excerpt from T-con MINUTES DICOM WORKING GROUP 16 held on Jan. 11, 2012

ASFNR Meeting

- Poster was accepted for presentation
- Face to face meeting **Friday morning between 7:00 - 8:20am -** Continental breakfast will be served (no charge for the room)
- RSNA staff working with ASFNR staff to coordinate requirements for meeting
- Agenda – go through current draft of profile in more detail –establish writing/section authors

Continuation of Strategic Plan (see March 2011 Semi Annual Report Draft – Dr. Carson)

- Summary of findings of the phase 1 reproducibility studies
- Determine how to use results to move claims development forward (next step in evaluating the results and incorporating what is achievable in the current draft of the profile)
- Determine how data will be used from the currently funded projects to fill gaps in our knowledge
- Define further gaps and strategies to fill these knowledge gaps
- Proposal to devote next full meeting (2/29) to this discussion for strategic planning

Claims Construction (notes from last meeting)

- *Claims also must indicate limits when working on reproducibility aspects*
  - *Specifying the limitations of accuracy of distribution that can be achieved*
- *Aspects of Claim language requiring more discussion:*
  - *Starting point*
  - *Sources of potential variability*
  - *Whole biomarker or spatial distribution*
  - *Technique used by expert qualifier and how this is achieved*
  - *Software, training, expert procedures, etc.*

Claims Construction: (Last suggestion by Dr. Voyvodic):

A. fMRI can reproducibly localize the center of mass of motor cortex functional brain regions to within 5 mm.

B. fMRI can reproducibly determine the spatial edge of motor cortex functional brain regions to within 5 mm.

C. fMRI can reproducibly localize the center of mass of language cortex functional brain regions to within 10 mm.

D. fMRI can reproducibly a laterality index for hemispheric dominance of cortical language functional regions to within 20%.

E. fMRI can reproducibly determine the spatial edge of language cortex functional brain regions to within 10 mm.

Summary of Discussion

- Reproducibility groundwork efforts to identify scans that might be quantitative
    - Results of these scans would be used to phrase qualification efforts
- Identifying sources of error and variance within quantitative imaging QC results will be important in determining accurate and precise results
    - Looking at existing datasets to see how reproducible they are may be a good starting point
    - Need to determine how the numbers relate to the variability of the signal
    - AMPLE is an example of a possible solution to mitigate variation
    - Detectability is just as important as variability, as in the detectability of the BOLD signal and how its strength relates to the neuro-stimulus
    - Standardization of protocols via expert consensus will be helpful
- The team needs to put in place a systematic method to assess reproducibility/ variability including the following:
    - Assessment
    - Sources
    - Mitigation strategies
- Discussion of the Strategic Plan and Gantt chart as an organizational tool will be the agenda for the 2/29 technical committee call.

Next Steps

- Group to discuss Strategic Plan on next call with focus on Phase I reproducibility and NVU studies
- RSNA staff to finalize arrangement for ASFNR and provide Dr. Elsinger with host call in details

Next Calls

- QIBA fMRI Reproducibility WG, ***Tuesday, February 21st, at 11 am CST***
- QIBA fMRI Technical Committee, ***Wednesday, February 29th, at 11 am CST*** *(Strategi c Plan Discussion)*
- QIBA fMRI Reproducibility WG, ***Tuesday, March 6th at 11 am CST***