QIBA Perfusion, Diffusion and Flow – MRI Biomarker Committee (BC) Update Call
Wednesday, March 2, 2016 at 11 AM (CST)
Call Summary

Participants

Michael Boss, PhD (Co-Chair) Alexander Guimaraes, MD, PhD   Jason Stafford, PhD
John Kirsch, PhD (Co-Chair)   Wei Huang, PhD   Ying Tang, PhD
Mark Rosen, MD, PhD (Co-Chair) Daniel Krainak, PhD   Brian Taylor, PhD
Harsh Agarwal, PhD   Hendrik Laue, PhD   Lisa Wilmes, PhD
David Bennett, PhD   Dariya Malyarenko, PhD   Ona Wu, PhD
John Carrino, MD, MPH   Elizabeth Mirowski, PhD   Junqian (Gordon) Xu, PhD
Thomas Chenevert, PhD   Nancy Obuchowski, PhD   Dewen Yang, MD, PhD
Caroline Chung, MD   David Purdy, PhD   Gudrun Zahlmann, PhD
Daniel Gembris, PhD   Mark Shiroishi, MD   Yuxiang Zhou, PhD

RSNA
Joe Koudelik
Susan Weinmann

Moderator: Dr. Boss

DWI Update (Dr. Boss)

- Progress report
  - Automated analysis scheme is a goal
  - A process to verify manufacturer measurements has been initiated (a 1% error in length measurement will lead to a 2% error in diffusion data)
  - Margin of error minimized, as much as possible
  - Some diffusion data has been corrected

- DWI-DRO Project Update
  - Deliverables:
    - Definition of parameter range specifications suitable for DRO derivation
    - Definition of DICOM-compliant trace-DWI DRO metadata attributes

  - Q1 Aim: adequate sampling of DWI parameter space and standard meta-data definition to generate mono-exponential ADC maps required by conventional ADC analysis algorithms

- A brief update on the Diffusion Phantom paper was provided

Claim Guidance Update (Dr. Obuchowski)

- A progress update was provided on the progress of the Process Committee regarding the Claim Guidance document, which can be found on the QIBA wiki at: http://qibawiki.rsna.org/index.php?title=Main_Page
- Much information is needed during the construction of Claims, including the source of the numbers, and the thought process used in their selection
- Dr. Obuchowski offered assistance on structuring the Claim statement, and the statistics and values to use
- To determine performance values to use in the Claim, QIBA groups conduct groundwork studies
- The steps in determining performance value used in Claim are as follows:
  1. Choose appropriate statistical metric
  2. Determine characteristics which degrade performance, and their relative frequency
  3. Identify plausible set of performance values
  4. Consider clinical requirements

5. Consider sample size for testing compliance

6. Choose performance value

- The process of choosing between a longitudinal and cross-sectional metric was explained
- Examples of longitudinal claims currently being used in the Profiles of QIBA groups were given
- A glossary of Claim-related terms is included in the Claims Guidance document
- QIBA members are encouraged to visit the QIBA wiki, review the Claims Guidance document and contact Dr. Obuchowski with any feedback or questions

Round 6 Proposals (Dr. Boss)

- New groundwork ideas for 2016-17 have been requested
- PDF-MRI BC members were encouraged to submit project ideas directly to BC leaders asap; deadline for submission of BC-accepted proposals to RSNA is April 15
- Reminder to focus proposals on Profile completion and/or conformance procedures
- Projects may seek to answer questions that have not yet been addressed in current literature
- Funding has been secured for this second year, so projects are expected to begin closer to the October 2016 start time
    - o Total cross-modality funding will be similar to Round-5
    - o Because QIBA has continued to grow, the funding process may be more competitive

- The potential Round-6 DCE groundwork project will be discussed at the group's next call on March 8
    - o The need for a B1 phantom was identified for cross vendor and site B1 mapping comparisons
    - o Features of this B1 phantom included the need for anatomically relevant dimensions and features (e.g. can we model Air/bone interfaces) and the possibility of B1 and T1 measurement in a single phantom
    - o The initial step will be to evaluate the potential to modify the existing DCE phantom to meet the needs for B1 measurement
    - o Dr. Jackson to present on DCE phantom on March 8 DCE TF call

- Systematic literature reviews have been initiated by both DCE and DSC TFs
    - o DSC TF members have created a user guide for collaborative literature review that could be formatted to be used by other QIBA groups
    - o Drs. Laue and Wu to follow up offline to discuss expanding the literature review process into a potential Round-6 project

- The PDF-MRI BC has three potential project submissions for Round 6 from the DCE, DWI, and DTI TFs
- RSNA staff to distribute application materials to PDF-MRI BC members for reference

Next PDF-MRI Biomarker Committee Call: March 16, 2016 at 11 AM CDT