QIBA Diffusion-Weighted Imaging MR Biomarker Committee (BC) Call

Thursday, May 21, 2020 at 2 p.m. (CT)
Call Summary

Participants			**RSNA**
Michael Boss, PhD (Co-chair)	Dariya Malyarenko, PhD	Savannah Partridge, PhD	Joe Koudelik
Thomas Chenevert, PhD (Co-chair)	Daniel Margolis, MD	Lisa Wilmes, PhD	Susan Stanfa
Amita Shukla Dave, PhD	Nancy Obuchowski, PhD	Junqian (Gordon) Xu, PhD	

Moderator: Dr. Boss

Review of Previous Call Summary

- The notes from the April 16, 2020 DWI BC t-con were approved as presented

The Society of Abdominal Radiology (SAR) / QIBA Collaboration

- Dr. Margolis noted that SAR is interested in using quantitative biomarkers for determining the presence of clinically significant cancer, especially in prostate
    - They seek to assist with projects (reader studies) that require imaging review or processing studies and are interested in forming relationships with other organizations like QIBA

- The DWI BC is supportive of this collaboration and it was noted that any and all are welcome to join the group and attend calls
- Dr. Margolis noted that the SAR is divided by organ system or disease type panels
    - Within each panel, there are senior members who oversees projects, mentors, and junior members
    - Member engagement is based on their interest in working on something that will show benefits to the field, such as new documentation, research, or other initiatives that can alter clinical practice
    - Dr. Margolis to reach out to current SAR panel chairs and recommend that they contact appropriate junior members that might serve as QIBA liaisons to DWI and other BCs

- The technical confirmation of Claims could be used for the implementation of QIBA strategies into research and checking feasibility
    - This may be a good opportunity with prostate and liver; the greater number of involved SMEs, the more robust the DWI Profile will become
    - The more people involved across disease types, the more the DWI Profile Claim will be refined with the growth of available test-retest data, which could increase the likelihood of real world use of the Profile in clinical practice or in clinical trials
    - It was noted that the DWI Profile is focused on ADC, the QIB of interest
    - QIBA groups with an application in abdominal imaging that may be of interest to the SAR include the MRE and PDFF BCs

- Dr. Boss noted that he discussed with his VERDICT contact, the issue with ADC test-retest data; they would be difficult to utilize due to different b values

Cross-Sectional (cs) Claim

- There is no easily obtainable ground truth in vivo for ADC, but there is potential to use a DRO for a cs Claim
- Though it would not be rigorous, Invicro (ICRO) wanted to analyze ADC using subsets of b values
- All possible obstacles need to be determined

Discussion re: next steps for DWI Profile efforts

- Suggestion to refine existing longitudinal Claims at additional sites
- ADC is going to be high-volume in the near future in clinical trials; suggestion to keep attention on the current Profile and focus on getting it used in clinical settings
- Less interest in "whole body diffusion," which is not widely used as a biomarker
- It was difficult to obtain sufficient test-retest data, even for the current DWI Profile version
- In terms of impact, filling in gaps in the current Profile was deemed high priority
- Discussion re: using diffusion in clinical trials in the QIBA way; how to make this Profile usable for iCROs, certification process with the checklist vs. conformance testing
- Clearer description needed re: what is meant by "conformance"
- There is a lot of interest in refined protocols and how to incorporate them into the Profile
- More direct interaction with vendors is needed, as well as obtaining more test-retest data
- It was noted that the 70-page Profile document format is a major impediment to adoption as an imaging manual in a clinical trial; drafting a shorter, easy-to-use template to be considered
    - Typical clinical trial protocol would include only a few pages describing how lesions would be addressed, with reference to a comprehensive document
    - A ~ 5-page quick-start guide could be shared with different actors in the radiology community
    - There would also be stand-alone documents; one per disease site / organ site to correspond with the four different DWI Profile Claims; recommendation to start with prostate and breast

- Discussion continued re: cs Claims
    - It was noted that the existing Profile can be extended to include these additional Claims, but an additional public comment and consensus process would be required
    - The Claim could be based on ADC to make some sort of clinical decision
    - Need to estimate bias with respect to ground truth, to gauge distance from true value using DROs and phantoms to determine true measurement

- Suggestion to augment current work and fill in gaps, such as providing guidance for defining ROIs, which is crucial when using a longitudinal Claim; need to state explicitly what contrast and procedure
- Dr. Boss still plans to lead the effort of drafting a white paper like Dr. Kinahan's to inform the public a little more about the DWI Profile; all four organ systems will be addressed
    - Reporting of data re: ROI size to be requested from the community
    - Suggestion to address multiple issues corresponding with gaps in the Profile
    - Dr. Boss to try to work on white paper within next four weeks
    - Update on progress of this paper to be provided during the June 18 DWI BC call

- There is strong encouragement from QIBA leadership for new leaders at all levels and changes will be announced soon

Next DWI-MR BC Call: Thursday, June 18, 2020 at 2 p.m. CT
