

## QIBA MRE Biomarker Committee (BC) Call

Monday, November 20, 2018 at 3:30 PM CT

Call Summary

### Participants

*Patricia Cole, PhD, MD (Co-Chair)*

*Richard Ehman, MD (Co-Chair)*

Edward Ashton, PhD

Jun Chen, PhD

Michael Middleton, MD

Nancy Obuchowski, PhD

Kay Pepin, PhD

Suraj Serai, PhD

Claude Sirlin, MD

Mikio Suga, PhD

### RSNA

Joe Koudelik

Susan Stanfa

**Moderator:** Dr. Ehman

### Overview

- The April 9, 2018 call summary from the last MRE BC meeting was approved
- The Consensus Profile (Stage 2) was published in May 2018 and posted on the QIBA Wiki at: <http://qibawiki.rsna.org/index.php/Profiles>

### Profile Review

- The latest Profile version containing proposed revisions was circulated in advance of this Nov 20 t-con
- Vendors have submitted feedback and revisions regarding protocols
  - Dr. Ehman reviewed and provided rationale for changes that were made to the Profile
  - Updates were made to the appendices to more accurately reflect the current imaging acquisition protocols and to clarify imaging procedures for GE and Siemens 1.5T platforms
  - Discussion regarding the inclusion of current and future software versions (technical notes)
    - Committee consensus to remove information regarding future software versions from the Profile
    - Suggestion to indicate in the Profile what is currently available and update rapidly as new vendor information becomes available
      - Dr. Middleton to gather information on older software versions for Siemens, GE and Philips for MRE
    - It will be noted that the Profile user should anticipate updates as software becomes commercially available in coming year (for consideration when Profile will be used in clinical trials)
  - Detail regarding the scanning of inspiration (holding breath) to be added to the Profile
- Discussion on table 3.10 Image Analysis: concern was raised regarding one of the radiologist requirements relating to the parameter, "Mean shear stiffness of the liver"
  - "To avoid areas of incoherent waves, avoid regions immediately under the passive driver and stay ~1cm inside the liver boundary and contain a minimum of 500 pixels per slide"
  - The minimal number of pixels within a Region of Interest (ROI) was discussed
  - As a simple consensus choice due to lack of formal research, the MRE BC settled on the figure of 500 pixels per ROI some time ago; this may be a useful topic for a study
    - A range of 700 – 2000 was suggested as "marginally analyzable," however, it could be lower than 700
    - 500 pixels per ROI was deemed acceptable; speculation on whether a smaller number would work for clinical trials

- A repeatability study to examine a large amount of back data to determine where the minimal pixel cut off should be was proposed, e.g. 500 vs. 700 vs. 900 pixels
  - Test/retest data needed; suggestion made to examine cases containing large ROIs and adjusting the pixel threshold lower to while maintaining image quality
  - Cut off pixel value based on 4 slices, not a single slice, e.g. 500 pixels across 4 slices
  - Concerns raised regarding the variation between imaging protocols that do not share the identical sequencing matrix, e.g. 80 x 80, 256 x 64, etc.
  
- An overview of the conformance-testing process was provided
  - Dr. Pepin completed the first checklist draft, which was distributed on April 9 for MRE BC review
  - Volunteers needed to provide feedback on how practical/feasible the Profile is; the checklist would help to determine whether sites are able to follow and use it in a real-world setting
  - Conformance-testing is part of the technically-confirmed stage and would need to be conducted at a minimum of 3 sites
  - Copies of the conformance checklist will be available for discussion during the MRE BC breakout session during the November 28 QIBA Working Meeting; Dr. Guimaraes to be consulted regarding next steps
  - The advancement of the MRE Profile is the impetus for completing this check list
  
- Dr. Ehman to investigate why Section 3.4 is missing (the change log indicates that it was omitted due to lack of substantive content) and will report back during the MRE BC breakout session

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