

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

Thursday, June 18, 2020 at 2 p.m. (CT)

### Call Summary

#### Participants

Michael Boss, PhD (Co-chair)

Thomas Chenevert, PhD (Co-chair)

Rajpaul Attariwala, MD, PhD

Ishtiaq Bercha, MSc, MSEE

Amita Shukla Dave, PhD

Dariya Malyarenko, PhD

Daniel Margolis, MD

Nancy Obuchowski, PhD

Savannah Partridge, PhD

Brian Taylor, PhD

#### RSNA

Joe Koudelik

Susan Stanfa

**Moderator:** Dr. Boss

#### Review of Previous Call Summary

- The notes from the May 21, 2020 DWI BC t-con were approved as presented

#### DWI BC Leadership Changes (Drs. Boss, Chenevert and Malyarenko)

- There is encouragement from QIBA leadership for new leaders at all levels; the BC Co-chair role is instrumental in Profile development
- Dr. Chenevert will be stepping down from his DWI BC Co-chair role in July
  - He has made many significant contributions to QIBA efforts including the management of a DWI groundwork project that informed the Profile, and as the MR Scientific Liaison on the Steering Committee
- Dr. Malyarenko will be welcomed as a new DWI BC Co-chair in July; she has been collaborating with Dr. Chenevert re: her transition into this role
  - She has strong sense of DWI work to be done and has been the point-of-contact with the VERDICT team
- Dr. Boss to continue as DWI BC Co-chair for time being and he will begin to lead efforts to advance the Profile to Stage 3: Technical Confirmation, however, he encourages BC members to notify him if interested in serving as DWI BC Co-chair in the future

#### Technical Confirmation (Dr. Malyarenko)

- It was noted that the DWI BC is frequently discussed during other QIBA calls, e.g., Process Cmte, re: unique challenges in Profile advancement toward Stage 3: Technical Confirmation
- Discussion re: whether an organ-by-organ or a holistic conformance approach should be used; effect on claim confirmation would need to be considered
- Types of data need to be determined; test-retest and/or ROI size proposed
- DWI BC members were asked for feedback on approach and required data
- It was noted that very different requirements (e.g., MR coils) are needed for each organ site
- Dr. Margolis noted that the ACR may amend site quality requirements with additional qualification steps, e.g., quantitative performance add-ons
- This was one avenue to consider for implementing QIBA policy into the ACR's accreditation program
  - Prostate MR might be considered; this would be a multi-parametric approach
- Differences between certifying a site (conformance-testing) and advancing the Profile to Stage 3: Technically confirmed were summarized
  - Site Conformance:
    - When it comes to conformance, self-attestation or certification, demonstrating conformance should be on an organ-by-organ basis; this will vary among sites

- QIBA Profile is Technically confirmed
  - If organ-specific aspects of the Profile are technically confirmed, each site need not scan all organ sites (sites tend to specialize in organ sites...no single site is expected to be conformant to all four organ sites)
  - Collective data from multiple institutions focusing on each organ site would demonstrate that the entire DWI Profile is feasible
  - Dr. Obuchowski added that when different sites determine that a Profile is feasible, the focus should not be entirely on section 3; sites should also be asked to review section 4 and report back on whether conformance requirements would be feasible
  - The feedback on feasibility could provide information re: changes that need to be made to the Profile, make updates, and then publish as Stage 3: Tech Confirmed
- Discussion re: whether a minimum ROI size needs to be included in the checklist
  - Required minimum ROI size would depend on signal-to-noise ratio
  - It was suggested that an approach needs to be defined; organ-specific guidance needs to be provided
  - Due to there being a variety of perspectives, studies/data are needed to determine minimum ROI size and definition per organ site; suggestion to gather information via survey
  - A consensus white paper and standardization were recommended

#### **Discussion on VERDICT team data/collaboration (Dr. Malyarenko)**

- Results of the ADC Repeatability from VERDICT data – wCV results were received and an overview was provided
- Aim: The first step in the repeatability study was to calculate wCV for various ADC maps formed from different b values and from VERDICT data
- Cohort: There were 41 subjects with repeat VERDICT scans
- Registrations: All b value images were registered to the b0 (from b2000) from scan 1 (i.e. the image where the ROIs were drawn) prior to ADC map calculations
- Recommendation to initiate a meeting with VERDICT to discuss an appropriate analysis; staff to organize a pre-meeting strategy session with Drs. Boss, Chenevert, Dave, Malyarenko, Margolis and Obuchowski
- Dr. Malyarenko to reach out to VERDICT team to request availability for a call to be held after July 4<sup>th</sup>

#### **Extended BC Call Schedule for August and September (RSNA Staff, all)**

- In lieu of F2F breakout sessions that typically occur during QIBA Annual Meetings, RSNA staff offered to extend BC calls from 1 to 2-hours starting in July, until the Sept 29 virtual QIBA Annual Meeting
- The DWI BC will be extending its Aug. 20 and Sept. 17 calls to focus on strategy for Stage 3: Technical Confirmation

#### **White Paper (Dr. Boss)**

- Dr. Boss is leading the effort of drafting a white paper to inform the public about the DWI Profile
- Adjustments were made to this outline in response to DWI BC member input and this latest draft will be circulated
- Due to time limitations, additional offline feedback was requested
- The outline was displayed and due to time limitations, offline feedback was requested – staff to re-send the document to DWI BC members
- Discussion on this item will continue during the July 16 call

#### **Next DWI-MR BC Call: Thursday, July 16, 2020 at 2 p.m. CT**

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