

QIBA Musculoskeletal (MSK) Biomarker Committee (BC) – Leadership Call

Tuesday, October 17, 2017 at 10 AM CT

Call Summary

In attendance

Thomas Link, PhD (Co-Chair)

Xiaojuan Li, PhD (Co-Chair)

Robert Boutin, MD

Edward Jackson, PhD

Youngkyoo Jung, PhD, DABR

Dimitris Karampinos, PhD

Rick Kijowski, MD

Leon Lenchik, MD

Nancy Obuchowski, PhD

Edwin Oei, MD

Ravi Regatte, PhD

Carl Winalski, MD

RSNA

Joe Koudelik

Susan Weinmann

Moderator: Dr. Link

RSNA 2017 Annual Meeting - McCormick Place Convention Center - Chicago (Dr. Link)

- Draft poster shared by Dr. Link and feedback requested
- Draft poster to be circulated to MSK BC members for input prior to submission to RSNA staff
- Poster creation and review expected by October 25th, and submission to RSNA staff no later than **October 31**
- Drs. Mosher, Link, Li & Kubassova have signed up for lunchtime Meet-the-Experts poster sessions at the QIBA Kiosk in the Learning Center, Hall D; others are encouraged to sign up at on the Google Sheet at: <http://tinyurl.com/QIBA-MTE-Sign-up>
- While Dr. Link is unable to attend the November 29 QIBA Working Meeting (2:30 – 6:00 pm), others are encouraged to attend and may RSVP at: <http://tinyurl.com/2017-QIBA-Working-Meeting>
- MSK QIBA committee members Drs. Link, Chung and Potter will present at RSNA *Osteoarthritis: Beyond the Basics* course to be held at 8:30 am on Friday, December 1 (RoomE450A); add the course to “My Agenda” by visiting the RSNA website at: <https://meeting.rsna.org/program/>

Phantom Development – Update on meeting with NIST (Dr. Li)

- Dr. Li attended a one-day workshop at NIST in Boulder, CO
 - Academics and industry representatives attended
 - Researchers from field of imaging learned about applications in clinical and research studies
 - Dr. Li met with Dr. Keenan to discuss possible NIST involvement in phantom development
 - Drs. Sullivan & Jackson attended the workshop and discussion session focused on phantoms used for MRI calibration
- Discussion of possible application for a small business NIH grant to support MSK BC phantom development efforts
- Dr. Li to approach Dr. Mirowski at High Precision Devices for possible collaboration on phantom development
- It was noted that temperature control in a phantom is a challenge being discussed with NIST
- Multi-vendor, multi-site phantom study to be funded by Arthritis Foundation
 - Three phantoms (UCSF has one from GE-NBA study) have been ordered in support of this study from the same batch of GE-NBA study
 - Phantom specifications are from UCSF and were manufactured by the Phantom Lab, containing 2%, 3% and 4% agarose gel phantoms
 - Aim is to standardize protocols and perform cross-validation of cartilage T1rho/T2 values in phantoms and human subjects between sites (Cleveland Clinic, UCSF, Univ of Kentucky, Albert Einstein College of Medicine) and vendors (GE, Siemens, Philips)
 - Dr. Peters at GE received phantoms and has completed baseline measurements for GE-NBA study
 - Goal is to start the study by mid-November and complete within 6 months

Update on Claims (Drs. Li & Obuchowski)

- MSK Claims to be based on literature review and a groundwork project and will focus on reproducibility & measuring change
- Drop Box in which to store literature and documents has been created:
<https://www.dropbox.com/l/scl/AAC0jtpXF7Q8lseyGoTn-DCEXGt0sdnQ5gQ>
- Some QIBA groups have included a look-up table in their Profiles to aid user in finding the correct Coefficient of Variation (CoV) based on particular scenarios
- As long as variance is constant, raw value can be used to provide more flexibility in terms of Claim
- Dr. Winalski suggested that phantoms be used to determine reproducibility over a range of T2 values
 - Caution voiced that T2 reproducibility may change within each phantom depending on component concentration
- Claim #1: Technical performance claim to avoid between-patient variability
- Claim #2: Repeatability claim focusing on risk prediction and response to treatment
 - Reproducibility is not better than 4-5% based on studies reviewed by Dr. Link
 - **Absolute change** to be measured, i.e. without regard to an “increase” or “decrease”
 - Meta-analysis paper on cartilage compositional biomarkers reviewed by Drs. Li and Obuchowski, focusing on reproducibility will be published within the next few months and will provide material required for review of T2/T1rho imaging biomarkers
- The November 29 QIBA Working Meeting at the RSNA Annual Meeting and breakout sessions may help provide guidance on Profile-writing
- Formation of MSK TFs to focus on specific areas of Profile development such as patient-handling, protocols for phantom-scanning, and meta-analysis details are under consideration

Next Steps

- Dr. Link to circulate poster for input before finalizing
- Alternative call time to accommodate MSK BC members who cannot join on Tuesdays at 10 AM CT being considered; Susan to follow up for possible times
- Arthritis Foundation cross calibration study will be initiated in November
- Dr. Li to follow up with NIST and HPD for phantom development
- Continued work on MSK profile standardizing patient handling, MR sequences and image analysis

Next Call: Tuesday, November 21, 2017 at 10 AM CT

RSNA Staff attempt to identify and capture all committee members participating on WebEx calls. However, **if multiple callers join simultaneously or call in without logging on to the WebEx, identification is not possible.** Call participants are welcome to contact RSNA staff at QIBA@RSNA.org if their attendance is not reflected on the call summaries.

SAVE-THE-DATE:



QIBA Working Meeting at RSNA 2017 | Wednesday, November 29, 2:30-6 pm – Lakeside Center

RSVP at: <http://tinyurl.com/2017-QIBA-Working-Meeting!>