

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

Tuesday, June 20, 2017 at 10 AM CT

### Call Summary

#### In attendance

Xiaojuan Li, PhD (Co-Chair)

Thomas Link, PhD, (Co-Chair)

Michael Boss, PhD

Robert Boutin, MD

Garry Gold, MD

Edward Jackson, PhD

Dimitris Karampinos, PhD

Rick Kijowski, MD

Leon Lenchik, MD

Kecheng Liu, PhD, MBA

Tim Mosher, MD

Edwin Oei, MD

Rob Peters, PhD

Ravinder Reddy, PhD

Ravi Regatte, PhD

Carl Winalski, MD

#### RSNA

Joe Koudelik

Susan Weinmann

**Moderator:** Dr. Link

#### Welcome / Introduction

- Dr. Link welcomed MSK BC members to their inaugural call and provided some information on this new group
  - This is the first MSK initiative within QIBA, focusing on the assessment of musculoskeletal disorders and degenerative joint disease
  - Two cartilage compositional biomarkers identified for standardization efforts
  - Drs. Link & Li to invite orthopaedic surgeons and rheumatologists to join the MSK BC
    - This inaugural call has been limited to radiologists and industry reps
    - All future calls to include MDs, PhDs, orthopedic surgeons, rheumatologists, OARSI, ISMRM, industry and vendors (GE, Siemens and Philips reps)
  - Dr. Jackson provided an overview of QIBA, its groups and role within the RSNA
    - Thirteen Biomarker Committees and 16 Task Forces have been established with over 1,060 members
    - QIBA membership & representatives include: industry, equipment, informatics, radiologists, physicists, pharma, society, government and CRO
- Four modalities are represented in QIBA (e.g. CT, US, NM, MR), but the MR biomarker portfolio is the largest, which speaks to clear need of standardization in MR
- Background information to be distributed including:
  - Drs. Li & Link review paper on quantitative cartilage imaging biomarkers
  - QIBA FDG-PET Profile to be used as a template for the MSK Profile
- The long term goal is to create the complete QIBA Profile for T1rho/T2 of cartilage
  - Imaging protocols that can be used across different sites
  - Phantom development: work with Dr. Boss at NIST and Elizabeth Mirowski at High Precision Devices
  - Cross platform output calibration needed based on either “multi-slicer” or “3D” software usage
  - Conformance
  - Appendices
- The short-term goals are to:
  - Work on a meta-analysis and identify the claims/applications as outlined by Drs. Jackson & Mosher
  - Standardize sequences and develop a T1rho and T2 phantom as outlined by Drs. Li & Reddy
  - Create a cartilage repair subgroup (and possible separate claim) as suggested by Dr. Winalski
    - The International Cartilage Repair Society may be interested in participating

- Discussion on funding for groundwork projects
  - There is presently no QIBA contract with NIBIB
  - Dr. Jackson to keep group informed on funding situation
  - Dr. Boss provided an overview on possible NIST involvement regarding phantom development
    - A metrology infrastructure was developed to help establish ground truth
    - Establishing variables that may affect measurements
    - Developing mitigation strategies
    - Acting as a formal measurement service being opened up for use by the wider imaging community
- Underlying goals:
  - Compare data from different vendors
  - Devise protocol
  - Vendors to unite in common approach to get comparable readout sequences
    - Dr. Li will work with vendors and researchers (Drs Reddy, Peters, Liu and others) to examine differences between measurements obtained with different vendors
    - Protocol implementations should include all 3 major vendors, GE, Siemens and Philips
- Definition of biomarker scope and utilization
  - Early diagnosis, treatment, predicting (i.e., patient predisposition to disease) & using in clinical trials to target early disease
  - Monitoring advanced disease to be considered in the future; this was deemed less useful with chosen biomarker
- MSK BC Claim to be based on literature review and a groundwork project
  - Group to work with Dr. Obuchowski on choosing appropriate Claim structure (longitudinal or cross-sectional)
- Profile
  - Profiles to be least restrictive as possible as long as Claim can be achieved
  - Vendors to provide descriptive/specific information in appendices
  - The QIDW is an option for sharing phantom data and human subject data (curation required) and is located at: <http://qidw.rsna.org/>
  - To be used to predict and monitor disease
    - Due to its complexity, cartilage repair would be a separate Claim/Profile; the International Cartilage Repair Society may be interested in this effort
- Monthly calls are scheduled for the third Tuesday of every month at 10 AM CT to accommodate both US and European members
- Next Steps:
  - Conduct literature search, meta-analysis, Claim development (with assistance from Dr. Obuchowski)
  - Phantom development
  - Standardize sequence
  - Draft Profile using FDG-PET Profile as a template
  - Establish working groups (TFs)

**More information is available in the following locations:**

- <https://www.rsna.org/QIBA/>
- <https://www.rsna.org/QIBA-Profiles-and-Protocols/>
- <https://www.rsna.org/QIBA-Process/>
- <http://qibawiki.rsna.org/index.php/Profiles>
- [http://qibawiki.rsna.org/index.php/QIBA\\_Profile\\_Template](http://qibawiki.rsna.org/index.php/QIBA_Profile_Template)
- [http://qibawiki.rsna.org/index.php/Profile\\_Conformance](http://qibawiki.rsna.org/index.php/Profile_Conformance)

**Please see the posted items on the QIBA wiki for details:**

- [MSK site](#)
- [Process Committee wiki page](#)
- Process Committee [Profile Template](#) and [Claim Guidance](#)
- [Introduction to QIBA Presentation from Dr. Jackson: Parts I and Part II](#)

**Recommended QIBA Contacts** (RSNA Staff can provide emails)

- [Mr. Kevin O'Donnell](#) (QIBA Process Committee Chair)
- [Dr. Nancy Obuchowski](#) (QIBA Statistician)
- [Dr. Chenevert](#) (QIBA MR Scientific Liaison)
- [Dr. Nicholas Petrick](#) (FDA)
- [Dr. Michael Boss](#) (NIST)
- [Drs. Erickson](#) and [WU](#) (working on the DSC - MRI Susceptibility Phantom)

**Next Call:** Tuesday, July 18, 2017 at 10 AM CT

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