

QIBA Multi-parametric Metrology TF Call

23 November 2020 at 2:10 PM CT

Call Summary

In attendance

Nancy Obuchowski, PhD (Chair)
Andrew Buckler, MS
Patricia Cole, PhD, MD
Jana Delfino, PhD
Nandita deSouza, MD

Maryellen Giger, PhD
Charles Hatt, PhD
Bernice Hoppel, PhD
Erich Huang, PhD
Chaya Moskowitz, PhD

David Raunig, PhD
Daniel Sullivan, MD
Ying Tang, PhD
Xiaofeng Wang, PhD

RSNA

Joe Koudelik
Julie Lisiecki

Moderator: Dr. Wang

Approval of Call Summary

- The notes from November 16, 2020 were approved as presented

Use case #4: (Dr. Wang) – Topics discussed included:

- New terminology to include “data-driven imaging markers,” to replace “Radiomics”
- Dr. Hatt suggested “computationally-driven” as an alternative or additional term
- Dr. Giger mentioned “human-engineered,” and “deep-learning” driving radiomics
- Dr. Wang created a Radiomic Workflow Study chart, which includes the following steps:

- Image acquisition
- Image segmentation
- Feature extraction
- Data integration
- Data mining and model building
- Reporting

- Dr. Cole asked about the repeatability of the calculation and Dr. Huang asked about test-retest scans
- Dr. Delfino asked how does this use case relate to the other use cases? Where do you see the correlation with features? Selection of variables regarding feature selection must be transparent.
- More clarification is needed regarding phase 2 and essential claim components
- It is challenging to determine power and sample size, though the following must be considered:
 - Population
 - Expected predictors of performance
 - Learning curve-fitting method
 - Inverse power laws
- Some revisions to be made based on Mr. Buckler’s input
- Univariable screening should be avoided
- It is important to conduct stabilization analysis
- Avoid ranking features as this may not be meaningful and could confuse readers
- Serial measurements in section 3.7 need to be revised

Action item:

- Mr. Buckler will lead the next Use Case #2 call by walking the group through a cardiac example
- Dr. Wang to distribute the Radiomics paper for comments

Next call: Use case #2 (Dr. Delfino) on Wednesday, Dec. 9th at 10:10 am CT

Call Schedule: *schedule has been adjusted as of 11/16 – Presenters: please review.*

Date:	Topic:	Lead:
Wednesday, Dec 9 (10:10 am CT)	Use case 2: Phenotype classification	Dr. Delfino / Mr. Buckler
Monday, Dec 21 (2 pm CT)	Use case 3: Risk prediction	Dr. Huang
Monday, Jan 4 (2 pm CT)	Use case 4: Radiomics	Dr. Wang
Wednesday, Jan 20 (10 am CT)	Use case 1: Multi-dimensional descriptor	Dr. Raunig

Use cases:

- **Use case 1:** (Multi-dimensional descriptor) a panel to determine how to care for a patient
- **Use case 2:** (Phenotype classification) rule or decision tool to diagnose phenotype
- **Use case 3:** (Risk prediction) several biomarkers will be evaluated to create a prediction or risk score
- **Use case 4:** (Radiomics) may not have a specific biomarker for reference