

## QIBA Multi-parametric Metrology TF Call

17 August 2020 at 2 PM CT

### Call Summary

#### In attendance

Nancy Obuchowski, PhD (Chair)  
Patricia Cole, PhD, MD  
Timothy Hall, PhD  
Andrea Falkoff, MBA

Gene Pennello, PhD  
David Raunig, PhD  
Jana Delfino, PhD

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

#### RSNA

Joe Koudelik  
Susan Stanfa

**Moderator:** Dr. Wang

#### Approval of Call Summary

- The notes from July 27, 2020 were approved as presented

#### Use Case #4, Radiomics: (Dr. Wang) - Discussed paper outline

- Recommendations for the following were requested:
  - Machine Learning vs. Conventional Prediction Models
  - A definition of machine learning and clarification re: how to associate with radiomics
  - Variable selection: penalized method (lasso and its variants vs. stepwise AIC/BIC/p-value)
  - Radiomics studies with reporting measures needed for reference
  - Clarity needed re: a single timepoint vs. follow-up assessment; are repeated measures over time needed?
- Discussion re: whether sample size estimation required for developing a model in radiomics
- Imprecision in repeated measures could be due in part to different testing conditions: positioning, segmentation, slice thickness or other device parameters, reader interpretation, anything else?
- Also requested were:
  - Claims for QIBA in terms of serial measurements and information re: how to deal with serial variation
  - Clarification needed re: differences of opinion about whether aspects of radiomics or the output of “deep learning” algorithms are appropriate biomarkers for QIBA Profiles

#### Action items:

- Dr. Wang to distribute his paper outline to MPM TF members
- Dr. Raunig to circulate references

**Next call:** Dr. Raunig to present on Multi-dimensional descriptor (Use case 1) on Monday, August 24<sup>th</sup> at 2 pm CT

#### Call Schedule: **schedule has been adjusted**

Date:	Topic:	Lead:
Wednesday, Sept 2 (10 am CT)	<b>Use case 1:</b> Multi-dimensional descriptor	Dr. Raunig
Monday, Sept 14 (2 pm CT)	<b>Use case 2:</b> Phenotype classification	Dr. Delfino
Wednesday, Oct 7 (10 am CT)	<b>Use case 3:</b> Risk prediction	Dr. Huang
Monday, Oct 19 (2 pm CT)	<b>Use case 4:</b> Radiomics	Dr. Wang

#### 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