QIBA Multi-parametric Metrology TF Call
14 September 2020 at 2 PM CT
Call Summary

In attendance			**RSNA**
Nancy Obuchowski, PhD (Chair)	Gene Pennello, PhD	Ying Tang, PhD	Joe Koudelik
Andrew Buckler, MS	Daniel Sullivan, MD	Xiaofeng Wang, PhD	Julie Lisiecki
Erich Huang, PhD			

Moderator: Dr. Huang

Approval of Call Summary
- The notes from September 2, 2020 were approved as presented

Use Case #3, Risk prediction: (Dr. Huang) – Topics discussed included:
- Overview of potential problems with batch effects and artifacts
- Some methodology based on a general linear model, which will be shared with the group
- The expertise of Drs. Barnhart and Raunig is needed to review section 3.3
- The selection of QIBs based on underlying characteristics, such as polygenic risk scores and what the best combination would be to maximize relevant metrics
    - This may be relevant to model fitting
- Selection of candidates will be by repeatability, reproducibility, and variance
- Model selection will include bootstrap validation and risk calibration
- Opinions are needed re the following sections:
    - "Select cutoff such that the probability of disease equals the risk threshold"
    - "Simpler techniques may outperform more complex ones in limited sample sizes and lower signal-to-noise ratios"
- Include machine learning, neural networks, and deep learning for the discussion of more complex approaches

Action items:
- Dr. Huang will provide an updated draft of the paper for review
- All to focus on reviewing section 3 of latest draft, as well as any suggestions for section 4, and provide feedback to Dr. Huang: erich.huang@nih.gov
- Dr. Huang will also share some simulation studies for review; to be added to section 6 as examples

Next call: Dr. Delfino to present on Phenotype classification (**Use case 2**) on Wednesday, Oct 7th at 10 am CT

Call Schedule: schedule has been adjusted

Date:	Topic:	Lead:
Wednesday, Oct 7 (10 am CT)	**Use case** 2: Phenotype classification	Dr. Delfino
Monday, Oct 19 (2 pm CT)	**Use case** 4: Radiomics	Dr. Wang
Wednesday, Nov 4 (10 am CT)	**Use case** 1: Multi-dimensional descriptor	Dr. Raunig
Monday, Nov 16 (2 pm CT)	**Use case** 2: Phenotype classification	Dr. Delfino
Wednesday, Dec 9 (10 am CT)	**Use case** 3: Risk prediction	Dr. Huang
Monday, Dec 21 (2 pm CT)	**Use case** 4: 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