

# QIBA Quantitative CT Committee Update

Monday, April 5, 2010

11 AM CDT

## Call Summary

### In attendance

Andrew Buckler, MS (co-chair)  
P. David Mozley, MD (co-chair)  
Lawrence Schwartz, MD (co-chair)  
Harris Ahmad, MD  
Kristin Borradaile, MS  
Sung Chang, PhD  
Charles Fenimore, PhD  
John Fraunberger  
Philip F. Judy, PhD  
Grace Kim, PhD  
John Lu, PhD  
Michael McNitt-Gray, PhD

James Mulshine, MD  
Kevin O'Donnell  
Michael O'Neal, MD  
Nicholas Petrick, PhD  
Yuanxin Rong, MD, MPH

### RSNA

Susan Anderson, MLS  
Joe Koudelik

### QIBA Q-CT Ctte Abstract Submission for RSNA 2010 (Dr Petrick)

- Three abstracts in development; one clinical focus (for Chest section) and two medical physics focus (for Physics section)
- It is not uncommon for RSNA to receive multiple submissions on the same topic with overlap in the Methods
- The Chest abstract discusses bias and variance; includes discussion of Methods and regression analysis
- One Physics abstract (Dr Kim) focuses on the nodules and the acquisition parameters and their impact on size estimation (e.g. slice thickness, nodule shape, density)
- The second Physics abstract (Dr Lu) focuses on inter- and intra-reader variability in the data, using the raw size measurements instead of relative bias
  - RadPharm noted that the reads were separated by at least three weeks (not 30 days)
  - Dr Lu will confer with Drs McNitt-Gray and Petrick on defining main focus and integrating data

### Discussion on clinical sufficiency of cases (Dr Schwartz)

- Following experiments, interest in clarifying steps needed to move volume measures to clinical practice and related biomarker status
- RECIST started as perspective of clinical trialists in oncology
- The original RECIST paper was a warehouse of data: >6,000 patients with many oncologic diseases and stages
- Imaging was heterogeneous and included some physical palpation
- Accuracy compared to ground truth, not efficacy controlled by relationship to outcomes
- RECIST 1.1 was similar size with additional studies by RadPharm and MSK
  - was a statistical analysis exercise as well as an imaging exercise; there was no review of images, acquisition protocols or reproducibility
- Value in volume analysis remains its unique potential impact on patient management or acceleration of clinical decisions about trials
- Pharma trials would like to be able to stop a trial at 100 patients instead of 250 patients

- Must emphasize quality control procedures to circumvent issue of using a tool without clear knowledge and must overcome barrier of change in technology/procedures
- Continued discussion of 'sufficiency' of numbers of cases needed: RECIST (over 6000), pharma's goal (approx 100), Biochange and VOLCANO studies (approx 50-100 nodules)
  - No single study can provide definitive answer; the QIBA groundwork studies are critical
- Will continue discussion on connection between experiments and information needed for the qualification data package in development

#### **Next Steps**

- Drs McNitt-Gray and Petrick to confer with Dr Lu on finalizing abstract for RSNA
- Final review of three abstracts prior to Apr 15 submission to RSNA deadline
- Continue discussion on clinical sufficiency of cases
- Next call scheduled for Monday, April 19 at 11 am CDT