QIBA Quantitative CT Committee Update

Monday, March 15, 2010
11 AM CST

Call Summary

In attendance

Andrew Buckler, MS (co-chair)
P. David Mozley, MD (co-chair)
Kristin Borradaile, MS
David A. Clunie, MBBS
Charles Fenimore, PhD
John Fraunberger
Philip F. Judy, PhD
Grace Kim, PhD
John Lu, PhD
Michael McNitt-Gray, PhD
Kevin O'Donnell
Nicholas Petrick, PhD
Anthony P. Reeves, PhD
Yuanxin Rong, MD, MPH
Daniel C. Sullivan, MD
Hiro Yoshida, PhD

RSNA

Susan Anderson, MLS
Joe Koudelik

Optics Express Paper Update (Mr Buckler)

- Data has been organized and links created, but process has proven difficult
- Few action items remain for Drs Fenimore, Reeves and Zhao
- Mr Avila pursuing absolute value measurements; missing CT slice in data series may have caused issues
- Dr Fenimore and Mr Avila to follow-up with possible fix off-line
- Dr Petrick to replace missing data with 10 HU data
- Dr Fenimore to send spreadsheet of slice thickness series data to Dr McNitt-Gray

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

- Still gathering data/results for Group 1A study; abstract being developed; "Synthetic" term to be included in abstract title
- Presenting all results as one group proposed; comparing three different measurement methods
- Measurement techniques not related; each group averaged to their known truth, not to same values, e.g. linear measurements 1D to 1D / 2D to 2D / 3D to 3D - normalized analysis done
- Lesion orientation and shape within CT sections shows direct clinical relevance
- Slice thickness offsets bias for 3D data, but not as much for 1D or 2D; standard deviation deemed more relevant than bias here
- Need to identify subset of data to determine variance
- Most acceptable way to compare measurements still needed, that which QIBA recommends
- Regression analysis to be included
- Caution by the pharmaceutical industry not to associate 1D directly with RECIST or 2D with WHO
- Greater variance deemed with 1D than 3D measures
- Target audience primarily to be clinical, secondary will be research and industry
- Separation of analysis based on lesion shape proposed; spherical, elongated, lobulated, spiculated
- Multiple abstracts possible due to wealth of analysis and subgroup data; clinical and medical physics sections/focus proposed

- Abstract to include general conclusion with more details presented at RSNA
- Abstract submission deadline for RSNA is April 15, 2010 (Noon CT)

Thresholding

- Claim based on uncertainty (e.g. noise) and leads to threshold
- Threshold to declare real change that's medically meaningful
- QIBA to define that which distinguishes true biological change in noise for measurement; what is biologically relevant and distinguishable from noise
- Interpretation is what contributes to thresholding; pharmaceutical pushback possible
- Group 1A study may not derive this biological
- 1A – context of why QIBA pursuing this

Next Steps

- Dr McNitt-Gray to provide feedback for medical physics abstract based on 1A
- Profile and protocol development
- FDA Briefing Documents
- Next call scheduled for Monday, Mar 22 at 11 am CDT