QIBA COPD/Asthma Committee Update
September 1, 2010 at 2 pm CDT

Call Summary

In attendance   Zachary H. Levine, PhD
Philip F. Judy, PhD (Co-chair)   Joshua Levy
David A. Lynch, MB (Co-chair)
Andrew Buckler, MS   RSNA
Heather Chen-Mayer, PhD   Fiona Miller
David S. Gierada, MD   Joe Koudelik

Report on Steering Committee Strategic Planning Meeting in Chicago (Dr Judy)

Proposed QIBA organization moving forward
- Possible organization based on modality committees with organ/disease based task forces/subcommittees; this structure tends to mimic how vendors organize themselves
- e.g. CT Committee broken down into Volumetric CT and COPD/Asthma Subcommittees
- Project management support proposed to coordinate and consolidate common activities between Q-committees in a top-down structure to help committees focus on deliverables
- Work break-down structure being developed to track progress and focus content

Provide assistance for Profile development
- COPD/Asthma Committee to broaden focus
- Guidance for Profile development needed
- COPD/Asthma Committee agenda is different to vCT agenda
- Qualification of biomarkers to be used in drug development and system compliance testing with standardized consistent readouts with low variability is to be summary statement
- In addition to phantom focus, quality control and calibration issues, pull towards lung densitometry and airway measures to be qualified as biomarkers and assessed based on performance
- Clinicians need to be better engaged in importance of lung density measurements

Q-Committee Project Solicitation (support from NIBIB contract expected)
- QIBA awaiting final details of NIBIB contract award
- Discussion needed of possible projects that COPD/Asthma Committee wants to pursue
- Dr Judy to follow-up with Dr Stoel concerning phantom comparisons with computer programs; possible project for this committee to pursue
- Variety of phantoms for a variety of scanners possible; number of phantoms to include in this study remains in question
- Projects need to be directed according to Profile goals; projects will prioritize based on Profile goals
- Proposed biomarker pursuit include lung densitometry and airway measurements
- Committee priority is to develop a qualified biomarker (key criteria for identifying biomarker opportunities can be found at: http://www.rsna.org/Research/QIBA/QIBAKeyCriteria.cfm)
- Clarification of surrogate endpoint: "A biomarker that is proven to have predictive power of a clinical endpoint" e.g., does lung densitometry have a proven relationship to overall survival?
- Experimental groundwork needed to prove this relationship for both drug development and patient management issues
- Currently looking at spirometry as an endpoint that correlates with mortality; not considered a perfect biomarker yet
- Phantom activities to contribute to understanding mean and variance and provide insight as to scanners not performing correctly; phantom studies are robust remain important work

Profile Writing Update
- Need sense that a significant issue exists
    - Phantom data activity – groundwork determination
    - Clinical database – correlation with outcomes
- Need experiments to determine minimum detectable change from clinical data sets and reader studies (inter- and intra-reader variability)

- Need more people engaged in Profile writing, but volunteer over-commitment becoming an issue; may be holding Profile momentum back; active participation on calls welcome but not always expected
- Dr Lynch to continue with COPD Profile writing; follow-up with Mr Buckler for direction and guidance

NIST Foam Scan Update (Dr Gierada)
- Ten different densities of 2 cm slices of Last-a-Foam (General Plastics) scanned on different Siemens systems to examine variability
- Parameters (including slice thickness) kept consistent
- Result showed mean attenuation similar across scanner models; held to 1 HU
- When parameters varied (e.g., 1, 3, 5 mm slices), standard deviation of noise showed higher variation with thin slices and sharper kernels, while mean attenuation held constant
- Recon kernels demonstrated affect on quantitation of image data
- 1mm slices showed greatest variation
- Thicker slices and sharper kernels reduced variation across scanners
- Understanding of phantom fill material very important
- Importance of Dr Gierada's data – importance of these foam materials
- What materials (foams) are to be used in phantoms
- Need clearer understanding of clinical significance/utility

Next Steps:
- Dr Gierada's data to be distributed among COPD/Asthma Committee members
- Dr Lynch to continue with COPD Profile writing; follow-up with Mr Buckler for direction and guidance
- Next call scheduled for Sept 15, 2010 at 2 pm CDT