

QIBA COPD/Asthma Committee Update Call
Tuesday, September 1, 2009
11 AM CDT
Call Summary

In attendance:

Daniel C. Sullivan, MD (Moderator)
Andrew Buckler, MS
Harvey Coxson, PhD
Sean B. Fain, PhD
Eric Hoffman, PhD
Philip Judy, PhD
Zachary Levine, PhD
David Lynch, MD

Michael McNitt-Gray, PhD
John D. Newell, Jr, MD
James Ross, MD
Berend Stoel, PhD

RSNA
Susan Anderson, MLS
Joe Koudelik

For discussion

- Defining unique content and focus of this committee versus the COPDGene Imaging Committee

Background (Dr Judy)

- COPDGene formed an imaging committee in Feb 09
- COPDGene efforts include ultimately aggregating markers for staging and response assessment, both genotypic and phenotypic (measurements from CT scans) features
- COPDGene activities are complementary with QIBA volCT activities
 - QIBA committee will be a longer term activity with an emphasis on 'industrialization' as well as science
 - QIBA activity to include vendors, phantom developers and others
- Would like to develop reference standards for evaluation of lung disease
- This QIBA "disease subcommittee" can:
 - Define clinical context
 - Identify which measurements matter
 - Identify gold standard and benchmark (acceptable bias and variance)
 - Through development of Profiles can differentiate from COPD Imaging Committee
 - Can provide a methodology by identifying and exploring technical considerations in groundwork and Profile
- Background reading will be distributed by RSNA staff
 - "Systems engineering" matrix (potential sources of variability and mitigating strategies)
 - "Clinician's perspective/context for lung cancer" written by Dr James L. Mulshine which can serve as an explanatory example of clinical context
- Defining a single question may be helpful, e.g. sorting out sources of variability in QI measurements of lung density and airway geometry
 - Use term Airway *geometry* instead of *thickness* to include asthma
 - Profile Claims could be overarching question; could lump Lung Density and Airway Geometry into one Profile or split into two Profiles
 - Narrow focus is clinical trials; broad focus is clinical practice
 - Important to engage vendors for standardization to move into clinical practice

- Want to create incentives for industry interoperability like IHE
- Challenge is getting 3rd party reimbursement for QI
- To begin Profile activity, draft short text on clinical context and which measures matter
 - Which hardware and software? What is variability under ideal conditions?
 - Phantom group to determine
 - Measurement variability depends on algorithm for acquisition and analysis and vendor/manufacturer/model
- Densitometry work has been done; see work from Drs Hoffman, Stoel and Coxson labs
- COPDGene has numerous sites, scans and defined phantoms, e.g. GSK Eclipse study, a multi-center, international phantom study

Reference standard phantom

- Is there a need for reference standard phantom?
 - Dr Levine wrote article in past year on elastofoam
- There is a phantom for COPDGene (which could be modified and improved) but has not been established as reference standard phantom
- COPDGene phantom gaining use to approve scanner and prove its stability over time
- NIST does radiation dosimetry standards
- Pursue September call to include Drs. Eric Hoffman, Philip Judy, John Newell, David Lynch, Zachary Levine and Joshua Levy (Phantom Labs) to discuss:
 - COPDGene phantom and whether it needs modifications to become reference phantom.
 - Need for airway geometry/morphology phantom
 - Information gathering on comparison of existing phantoms
- Discussion on whether there a conflict of interest in having only one company that produces phantoms involved in group

Next steps:

- Drs Hoffman, Coxson and Lynch and others to draft short text on clinical context and which measures matter
- Dr Lynch will ask Dr Crapo to be involved
- RSNA staff to supply suggested reference documents
- Poll on availability of group members for f2f at ACRIN meeting; Drs Judy and Sullivan and Mr Buckler will be available; Dr Lynch available on Sept 30
- Pursue September call to include Drs. Hoffman, Judy, Newell, Lynch, Levine and Mr. Levy
 - Discussion on:
 - COPDGene phantom and whether it needs modifications to become reference phantom.
 - Need for airway geometry/morphology phantom
 - Information gathering on comparison of existing phantoms