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

In attendance:

Daniel C. Sullivan, MD (Moderator)  Michael McNitt-Gray, PhD
Andrew Buckler, MS  John D. Newell, Jr, MD
Harvey Coxson, PhD  James Ross, MD
Sean B. Fain, PhD  Berend Stoel, PhD
Eric Hoffman, PhD
Philip Judy, PhD  RSNA
Zachary Levine, PhD  Susan Anderson, MLS
David Lynch, MD  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 voICT 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 elastofom
- 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 is 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