QIBA COPD/Asthma Phantom Design Subcommittee

February 18, 2010
2 PM CST

Call Summary

In attendance

Philip Judy, PhD (co-chair)
Andrew Buckler, MS
Zachary Levine, PhD

RSNA Staff

Susan Anderson, MLS
Joe Koudelik

General Discussion

- COPD investigators feel current CT problems deal primarily with CT scale and phantom fill materials (foam too uniform) to reproduce CT numbers
- 2D version of branched lung embedded in plastic proposed; 3D control of foam bubble very challenging

Lung Density vs. Airway Morphology Priorities

- May be sufficient to address lung density issues at this time
- Need to examine higher context to recognize differences between density and airway measurements; a simple calibration solution may not be possible
- Dr Judy to review available data to better understand longitudinal studies at approved dose levels – may lead to developing procedures focusing on density
- Data available:
    - COPDGene Data (5mm sections)
    - Eclipse Cases (thin and 5mm sections)
    - NLST cases (thin and reconstructed thick sections)

COPDGene Phantom Modification Update (Dr Judy)

- Dr Judy scanning COPDGene modification (annulus) received from Mr Levy of Phantom Laboratory
- Measurements show consistency across six different scanners
- Air inside annulus air hole appears similar, or slightly lower, to outside (in foam fill); air in holes show a lower density then expected which is not consistent with hypothesis
- Annulus to be scanned with the ACR accreditation phantom using COPDGene protocols; ACR phantom allows broader range of CT numbers

New members joining group

- Per Bakke, MD, PhD - European expertise with COPDGene project
- Susan Wood, PhD - CEO of VIDA Diagnostics - algorithm experience

Next Steps:

- Density and Hardware issues
- Dr Levine sending DVD of UPenn phantom scans to Dr Judy for review
- Limitations upstream that make compromises, e.g. Siemens Sensation 64 scanner, may cause issues
- Next call scheduled for March 4th, 2010 at 2 PM CST (3 PM EST)