

QIBA COPD/Asthma Technical Committee Update

January 12, 2011 at 2 pm CST

Draft Call Summary

In Attendance

Philip Judy, PhD (Co-chair)
David Lynch, MB (Co-chair)
Andrew Buckler, MS
Heather Chen-Mayer, PhD
Harvey Coxson, PhD
Sean Fain, PhD
David Gierada, MD

Zachary Levine, PhD
John Newell, Jr., MD
Jered Sieren
Berend Stoel, PhD
Daniel C. Sullivan, MD

RSNA

Joe Koudelik
Julie Lisiecki

Update on Proposals Discussed

- **No final decisions made, but unlikely either COPD proposal will go forward at this time consider a good exercise for year-2 submission**
- More discussion about revising proposals with regard to:
 - Concerns about variability and how this relates to current ctte work
 - May circle back or follow up at a later date; need more discussion

COPD/ Asthma Protocol and Profile Update

- UPICT template used as reference to develop COPD imaging protocol
 - Measuring severe emphysema, air trapping
 - Claim language may change as groundwork continues.
 - General language will allow protocol use for both COPD and Asthma
 - SPIROMICS protocol may be used as a starting point for COPD protocol development
 - Imaging protocol is just one section (section 3) within the larger Profile (5 total sections)
 - COPD/Asthma members to consider full Profile beyond the protocol section; working within the full Profile format suggested

Profile Volunteers

- Drs. Fain, Gierada, Judy, Lynch, and Newell volunteered to begin working on sections of the Profile
- Dr. Chen-Mayer and Judy to work on the matrix of needed experiments and look into details for next steps
- Dr. Lynch will summarize and send volunteers the current version of the Profile via email
- Would like to alternate weekly meetings: one week – Profile work; next week - group update
- Volumetric CT profile has 56 pages; this one does not need to be that long; Vol-CT Profile is a model to follow for COPD

Comment on LAA (low attenuation area)

- Terminology could be a little misleading - volume or fraction that is being measured
- Other possibilities:
 - CT emphysema index
 - Lungs analyzed on slice by slice basis; looking at % of each slice area
 - CT scans use LAA measurements as an 'area' – do have thickness as well, which is expressed as a volume %
- Timing – agreed to specify 72 hours
- Performance/ specifications – agreed to use bulls-eye approach to performance: 'acceptable,' 'target,' and 'ideal'

COPD Gene Phantom QA Data Update

- Mr. Sieren perfected automated analysis; 300 scans were done; 31 scanners reviewed; most sites provided single scans
 - Important for breathing protocols/measurements to match across scanners
- Many of the sites provided only a mean value – calculated same deviation
- 0.54 HU was the median scan of the lung mean
- Need to consider:
 - How much variability is there in the foam(s)?
 - Why did systematic differences occur?

Scanner Variability

- **GE Light-speed:**
 - 3 light-speed units/ 16 sites – talking with GE about anomalies
 - Shifts occurred with changes in software, updates, recalibration, etc.
 - Volume measurement appeared to be at 50 when stable, and between 150 – 200 if not stable.
- **Philips Brilliance 64:**
 - Software version change caused change in 4HU and a change in the direction of the water

Volunteer Imaging Sites to Acquire Modified Phantoms:

- Harvard/ Brigham and Women's
- University of Iowa
- National Jewish

Foams:

- *Elastofoam*: put box on 'chest' when scanning the phantom
- Gamex has special box containing multiple foams for this purpose
- Drs Judy and Chen-Mayer to identify experiments to better study *Elastofoam* variability
 - Variability average over many slices could be 4 HU

Next Steps:

- Dr. Judy to follow up with and solicit additional section authors
- Dr. Chen-Mayer and Judy to work on the matrix of needed experiments and look into details for next steps
- Next call scheduled for **Feb 9th, 2011 at 2 pm CST**