

QIBA COPD/Asthma Technical Committee

August 8, 2012 at 2 PM CT

Call Summary

In attendance

Philip F. Judy, PhD (Chair) Zachary Levine, PhD
Paul Carson, PhD Joshua Levy
Martin Connell, BSc Frank Ranallo, PhD
Sean Fain, PhD Berend Stoel, PhD
Jong Hyo Kim, PhD Daniel C. Sullivan, MD

RSNA

Joe Koudelik
Julie Lisiecki

General Updates

- Dr. Chen-Mayer's presentation at the AAPM conference on NIST foam calibration went well.
- Dr. Judy welcomed Dr. Jong Hyo Kim to the call and briefly reviewed his AAPM poster (also distributed).
- On the next call, a discussion of the Profile is planned with focus on quantities rather than disease
 - Claim language to be updated for next call.
 - Dr. Newell to present additional critical applications concerning lung density
- The QIBA Metrology Working Groups (Algorithm, Performance, and Terminology) are requesting claims from all of the QIBA technical committees to identify commonalities and review use of terminology.

Calibration of Toshiba Aquilion One and LightSpeed 16 using COPDGene Phantom (Dr. Judy)

- Goal to develop methods to obtain consistent measurements and determine the consequence of CT scanner inconsistencies identified on COPDGene Study scanners
- Observations:
 - Intra-model variations are small relative to inter-model variations
 - For most vendor models used in the COPDGene Study, the CT number measurement (HU) outside human subjects is unlikely to be useful as a correction for intra-model variations, because the CT number of air outside the COPDGene Phantom is a constant (-1000). The exception is the GE LightSpeed 16.
 - The CT number of air outside and inside the COPDGene Phantom for some GE LightSpeed 16 had a large shift caused by recalibration of scanners.
 - Variation of CT number of air in air hole and NIST foams of the COPDGene Insert with various size rings
 - Contribution of scanner variation to variance of emphysema metrics.
 - Some Toshiba scanner models were excluded from ECLIPSE and COPDGene studies due to issues with calibration

General Calibration Issues

At the end of the conference call, there was general discussion regarding vendors changing reconstruction software. There was consensus that reconstruction software changes have occurred that impacted multi-institutional studies. In some cases, study investigators were unaware of the software changes. The following suggestions were proffered:

1. CT vendors should better inform the investigators in multi-institutional studies of software changes that could impact quantitative CT measurements. However, vendors need be aware of the ongoing quantitative studies, and in many situations, the site radiologists are unaware of the quantitative details of the investigations.
2. Multi-institutional studies need quality assurance programs that will identify software changes that could impact quantitative CT measurements. (**Comment from Chair:** For COPD studies, the COPDGene Phantom will be particularly useful.)

Next Steps

- Seek alternate sources of funding of RFP for computer program to analyze COPDGene Phantom images
- Review and evaluate low-dose reconstruction protocols
- Plan a comparison of airway-size image analysis algorithms
- Discuss Profile claims and next steps

Next call: QIBA COPD/Asthma Update Call, [Wednesday, August 22, 2012, 2 pm CT](#)

QIBA COPD/Asthma Technical Committee - Events

- COPD Genetics Conference **9/27/2012- 9/28/2012** AMSTERDAM

Summer / Early Fall Schedule (*times shown in Eastern*)

8/22/2012 - Wednesday 3 PM Regular Conference Call

1. Review of CT lung density clinical applications
2. Normative CT lung density data
3. Discussion of Profile claims

9/5/2012 - Wednesday 3 PM Regular Conference Call - TBD

9/19/2012 - Wednesday 3 PM Regular Conference Call - TBD