

QIBA COPD/Asthma Lung Density Reference and Consistency Standards Work Group Update

July 27, 2011 at 2 PM CDT

Call Summary

In attendance

Philip Judy, PhD (Co-chair)

Andrew Buckler, MS

Heather Chen-Mayer, PhD

Sean B. Fain, PhD

Baojun Li, PhD

Jered Sieren

RSNA

Joe Koudelik

Julie Lisiecki

Agenda:

Dr. Baojun Li presentation: Investigation of the causes for CT number shifts in the "lung" test objects

Summary from PowerPoint presentation:

- Scatter and cone-beam effect prevail beam-hardening effect as the root causes of cupping effect
- They account for the majority of cupping (~10 HU)
- Recommend to focus future technical efforts on scatter/cone-beam reduction. E.g.:
 - Narrower collimation < 10 mm
 - Lower pitch 0.5 - 0.7 : 1
 - Better way to center phantom/patient
 - How to address elevated dose level?
 - In conjunction with scatter reduction algorithms
 - ...

Proposed idea from Dr. Judy:

- Scan a set of phantom rings; ask for the reconstruction that makes air inside the ring – 1,000 HU; and encourage vendors/ algorithm developers to understand why it is necessary to make air inside the ring *flatter*
- Goal to reduce variability among scanners by establishing an additional calibration procedure.
 - Need to demonstrate that this is an improvement.
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- Dr. Judy working on a plan for comparison of results with this particular scheme; will report back to the group
 - Goal to improve variation reduction
 - Would like to test Philips scanner with the phantom ring inserts

Next steps:

- Dr. Judy to summarize the critical issues and send a query to the group re: suggestions
- Dr. Judy to share email with group regarding the difference between a Quality Assurance Phantom and a Reference Phantom
- Drs. Levine and Chen-Mayer to report on the NIST program of matching foam; normal lung and low density lung (August 17th)
- Dr. Newell to ship one of the 20 phantoms to Dr. Chen-Mayer
- Profile discussion on the next Tech Ctte call on August 10th

Next calls:

- **Wednesday, August 10th** - COPD/Asthma Technical Committee Update Call
- **Thursday, August 11th** – COPD/Asthma Tech Ctte Strategic Plan WG Update Call
- **Wednesday, August 17th** - Lung Density Reference and Consistency Standards Work Group