QIBA Volumetric CT Colorado Group Project Update

Tuesday, October 18, 2011 at 11 am CDT

Draft Call Summary

In attendance		**RSNA**
Kavita Garg, MD (Chair)	Paul R. Garrett, MD	Fiona Miller
Hubert Beaumont, PhD	Grace Kim, PhD	Joe Koudelik
Andrew Buckler, MS	David Miller, PhD	Julie Lisiecki
Paul L. Carson, PhD	Nicholas Petrick, PhD	
Barbara Croft, MD	Ann Scherzinger, PhD	
Alden Dima, MS	Neil Steinmetz, MD, JD	

Discussion regarding study design

- Group is modeling much of the study after that of QIBA Group 3A
- Variance, precession, reliability, and repeatability are similar to 3A
- Will process data with B30 algorithms to see if there is variability
- A phantom has been ordered

Location of synthetic nodules within phantom:

- Placement of part-solid spherical nodules and part-solid lobular nodules , following the same layout used by Dr. Petrick
- If it will generate valuable data, the function of nodule size will be important and may lead to a subset analysis

Reading modification on metrics with respect to manual modifications of the reads

- The group would like to make the reads more quantitative, e.g., capturing the differential time to do the reads
- Suggestions included
  - to keep the boundaries for segmentation and ask for the boundaries prior to editing
  - to store the seed point , contour, and reconstructions for future studies
  - to keep the format similar to other QIBA Group studies for possible future comparisons

Protocols

- Low-dose and standard-dose protocols have been separated and mimic the QIBA- recommended protocol, v.2
- Incorporated parameters from the Siemens 64 protocol

Hypothesis

- Hypothesis is needed to better plan for data collection and to position the analysis.
  - This should be expressed in terms of a QIBA Profile claim.
- Dr. Petrick recommended having a statistical plan in place prior to beginning the experiment.
- Colorado Group study may be used as a preliminary study to get data to support a larger hypothesis -driven study.

- Dr. Garg mentioned that there may not be significant difference in variance with low dose.
  - Low dose does not adversely affect the Profile claim
  - No additional bias in reading low dose vs. high dose
- Dr. Petrick suggested reviewing the "Das" paper on variability and bias particularly for part-solid nodules.

Next steps:

- QIBA Vol CT Colorado Group to determine **specific main hypothesis** –
  - {specific measurements for RECIST (1D) vs. volume (3D)}

Next Call: VOL CT Colorado Group Update call scheduled for ***Tuesday, November 8th, 2011 at 11 am CST.***

References:

1. Accuracy of Automated Volumetry of Pulmonary Nodules Across Different Multislice CT Scanners. *European Radiology*, *2007*: (17) 1979-1984. Das, Marco, et al.

2. Small Pulmonary Nodules: Volume Measurement at Chest CT—Phantom Study[1]. *Radiology, 2003*: 228 (3): 864-870. Ko, Jane P., et al.