QIBA Quantitative CT Group 1C Subcommittee Update
Wednesday, December 15, 2010; 1 PM CST
Call Summary

In attendance		**RSNA**
Charles Fenimore, PhD, (Chair)	Michael McNitt-Gray, PhD	Joe Koudelik
Baiyu Chen	Nicholas Petrick, PhD	Julie Lisiecki
Marios Gavrielides, PhD	Anthony P. Reeves, PhD	
Hyun Grace Kim, PhD	Ying Tang, PhD	
John Lu, PhD		

I. Review of the 1C Imaging Protocol: Tables for the ACRIN 6678 and the Performance-Based Branches

- The tables highlight differences in the scanner settings for two protocol branches, mainly the mAs settings.
- The tables should be expanded to provide more of the settings.
    - Table to be expanded to include number of images/ scans performed; 10 scans originally considered, but 5 might suffice
    - Include two or more filters for multiple reconstructions. The recons will be available for a possible future study of the impact of filter on volume measurement. The use of iterative reconstruction filters is desirable if they are available.
    - Other known parameters settings.

- **Voxel size parameter to be replaced with Display Field of View:** The specification of voxel size (to range from 0.55 to 0.75 mm) is to be replaced with a suitable Display Field of View (FOV). Display FOV should be chosen so that:
    - There is a full view of the phantom "lung" region.
    - The sampling interval (voxel size) implied by the Display FOV must be small enough to conform to the requirements of the Sampling Theorem in displaying 7 or 8 lp/cm (approximately 360 – 320 mm).
    - Expect that a Display FOV of 300mm - 350mm will meet the above two requirements.
    - Very important to distinguish between Scan FOV and Display FOV for purposes of standardization
    - Changing the Display FOV by small increments will not change the resolution significantly. It is expected that noise will not be affected.

- **Pitch:** Should specify for Philips and Siemens: .984

- **Item related to standardization:**
    - Noise would probably increase with sharpness of the recon filters.
    - Possible test for this question – scan a homogeneous area, such as the "heart" on the phantom
    - Dr Gavrielides to explore the noise measured in the phantom heart for different dose settings and report back to the group

II. Identify phantom design issues to be resolved.

- Unresolved design issues for phantom nodules are density and location in lung. Shape and size are largely resolved.

Next steps:

1. Dr Fenimore to populate table with settings needed for imaging under the protocol on each of the systems. Table to include the number of repeat image acquisitions. Tables to be sent to the participating sites for review.
2. Determine the display FOV (Drs Gavrielides and Fenimore to investigate); consider 300 mm; most likely use 350 mm.
3. Dr Gavrielides to explore using the heart area of the phantom to get a reliable image noise measurement, for use in assessing the impact on image quality of different reconstruction filters.
4. Each participating site should identify good dates for scheduling the imaging with the FDA anthropomorphic phantom
5. Dr McNitt-Gray to follow-up with Dr Boedeker regarding data and images for the ACR Accreditation Phantom.

Next call: Wednesday, Dec. 22nd, 2 pm CST, 3 pm ET.