QIBA CT Volumetry Biomarker Ctte (BC) Call

12 March 2020 at 11 AM (CT)

Call Summary

In attendance			**RSNA**
Ehsan Samei, PhD (Co-Chair)	Jocelyn Hoye, PhD	Kevin O'Donnell, MASc	Joe Koudelik
Jenifer Siegelman, MD, MPH (Co-Chair)	James Mulshine, MD	Nicholas Petrick, PhD	Julie Lisiecki
Maria Athelogou, PhD	Nancy Obuchowski, PhD	Ying Tang, PhD	
Hubert Beaumont, PhD			

Moderator: Dr. Samei

Simulated Lesion Study Discussion:

- Dr. Hoye has been working with simulated 10 mm solid lesions and has expanded testing to include various lesion sizes
- She is looking at LUNG-RADS related to the risk of malignancy and is re-writing simulations for new size benchmarks as follows: 3 mm; 6 mm; 10 mm; 15 mm
- The team is considering adding another category of larger-sized lesions and increasing the upper range
- The 3 - 6 mm lesions would be of interest to the Small Lung Nodule BC, whereas the 10 – 100 mm lesions sizes, with breakpoints at 35 and 50 mm would be of greater interest to the CT Advanced Disease Profile
- Parameters in the Small Lung Nodule Profile could be tweaked to match volume in the CT Advanced Diseased Profile
    - Another call will be scheduled to review the additional simulation test results
    - The Profile Change Proposal depends on these results
- It is not yet clear how to get test-retest data to move to Claim Confirmed (Stage 4)

Partnership with Dr. Beaumont:

- Dr. Beaumont is working with a French cancer center, and they have agreed to make measurements onsite with clinical data to better assess the phantom
- It may be possible to design a study with phantom testing, using an alternative phantom, as the one required by the CT-ADV Profile is not available
- If this may be possible, the following are required:
    - A uniformity section
    - An edge resolution section
    - Calculation of modulation transfer function (MTF) 50 values based on phantom edges
- The group believes this is a feasible solution since the Profile does not require the ACR phantom; any equivalent that meets minimum criteria is acceptable
- Dr. Siegelman suggested drafting a Google document that lists phantoms that are acceptable to be linked to the Profile for reference
- Dr. Beaumont indicated that his colleagues are willing to make the prescribed measurements and to follow the subject handling requirements outlined in the Profile
- They intend to use a CATPHAN phantom, which will allow for scanning and collection of DICOM data to check conformance by providing sample sizes and measurements
- Mr. O'Donnell recommended using a requirements checklist for the actors, along with validation of any segmentation tool used, i.e., automated vs. semi-automated, or fully manual
- Some of the tools are:
    - LIFX – fully manual
    - GE
    - Median Technologies - integrated
- To reach the claim confirmed stage, the following details will be needed:
    - Number of cases and sites (Dr. Obuchowski offered to help identify these numbers)
    - Multiple sites will be needed to prepare the sample size

- Phantom scanning to generate assessment metrics
- Qualification of scanners that are used for clinical trial work; not all site scanners need to be qualified (this should reduce the effort needed)

Next Steps:

- Reviewing binning of lesion sizes (e.g., small, med, large) as a change proposal for the Profile
- Obtain input from Dr. Obuchowski regarding the work of Dr. Samei's group to determine if a revised coefficient of variation is needed

Action items:

- RSNA Staff to set up a Task Force call in 2 - 3 weeks via doodle poll for Drs. Beaumont, Hoye, Jarecha, Samei, Siegelman, Obuchowski, and Mr. O'Donnell
- A call for the BC to be scheduled in 4 - 6 weeks per doodle poll (Dr. Hoye to provide a simulation study update)
- Invite Dr. Schwartz to a future CT Volumetry call to discuss his study

Next Call: To be determined via doodle poll. Doodle poll will be used to confirm participation.