

## QIBA CT Volumetry Feasibility TF

02 June 2020 at 11 AM (CT)

Call Summary

### In attendance

Rudresh Jarecha, MBBS, DMRE, DNB (Co-Chair)

Ehsan Samei, PhD (Co-Chair)

Hubert Beaumont, PhD

Jocelyn Hoye, PhD

Nancy Obuchowski, PhD

Kevin O'Donnell, MASc

Daniel Sullivan, MD

### RSNA

Joe Koudelik

Julie Lisiecki

**Moderator:** Dr. Jarecha

**Simulation Study Update:** (Dr. Hoye)

### Topic 1

- Goal for sites to confirm that they are conformant with the Profile and validate imaging protocols, demonstrating that noise resolution and metrics are within QIBA parameters
- Dr. Hoye reviewed extended analysis for multiple sized groups since the last discussion on 2/27
- She tested 297 protocols on Siemens and GE scanners with different slice thicknesses, reconstruction methods, F50 values and noise values, and reviewed the changes to noise and its effects
- Dr. Samei noted that keeping the noise at 80 instead of 60 was recommended to be mindful of radiation dose
- For the F50 values, 0.3 was retained for the lower bound, and the upper bound was increased to 0.7, where lesion size was 10 mm

### Topic 2

- Reviewed binning of lesion sizes (e.g., small, med, large) as a change proposal for the Profile
- The QIBA distribution is narrower and cuts out some of the outliers
- Since any slight differences were negligible, claims do not need to be changed
- Bin lesion sizes for the claim will remain as follows:
  - 10 – 35 mm
  - 35 – 50 mm
  - 50 – 100 mm
- In terms of this study, size bins for the large nodule Profile performed well, suggesting that requirements may be loosened slightly for the Profile, making it more user-friendly
- The QIBA protocol proved better performance for all tested nodule sizes in the 3mm-17mm range
- Vendor protocol differences across the board were negligible and proved to be a small part of the workflow
- The Profile is ready to move on to pursue claim confirmation with Dr. Beaumont's sites

### **Harmonization:**

- There was some discussion regarding harmonization of the small lung nodule Profile with the Profile for Advanced Disease for future clinical trial use
  - Additional future analysis would be welcome
- These results will also need to be shared with the Small Lung Nodule BC
  - They should be made aware that the study validates the 6mm lesion cutoff size in the SLN Profile
- Study confirms that Profile Claims cannot be size agnostic

### **Wiki update:**

- Dr. Samei suggested that once Dr. Hoye's paper is published (submitted to *Academic Radiology*), she can link some documentation of her research to the QIBA wiki that supports the cutoff for the 10mm lesion size

### **Google document and site motivation text:**

- Mr. O'Donnell has drafted a Google document outlining the study objectives and design
  - He will share the link to this document with the group

- Dr. Beaumont requested that Mr. O'Donnell include "motivation text" to explain to sites why it would be beneficial to participate in QIBA Profile testing

**Action items:**

- Mr. O'Donnell to add AAPM open-source software links to the Profile or for use on the wiki
- Mr. O'Donnell to link a Google document that lists acceptable phantoms for the Profile for reference
- Obtain input from Dr. Obuchowski regarding the work of Dr. Samei's group to determine if a revised coefficient of variation is needed

**Next Call:** To be determined