

QIBA CT Small Lung Nodule (SLN) Biomarker Ctte (BC) Call

16 April 2019 at 11 AM CT

Call Summary

In attendance:

Samuel G. Armato, III, PhD (Chair)

David Gierada, MD (Chair)

James Mulshine, MD (Chair)

Rick Avila, MS

Alexander Guimaraes, MD, PhD

Mario Silva, MD

RSNA:

Joe Koudelik

Julie Lisiecki

Moderator: Dr. Gierada

Pursuit of Profile Technical Conformance (Dr. Gierada):

- Group members are working to complete the checklist with volunteer sites
- Following the checklist, a colleague of Dr. Gierada's scanned the CTLX1 phantom and will provide data and user experience/feedback soon
- Other sites were invited to participate but follow-up will be needed; at least two more sites needed for checklist review to reach technical conformance status
- Ninety CTLX1 phantoms have been distributed with the VA being the largest user to date
- Multiple VA locations can do this testing, and presently, there are over 20 sites that have the phantom already
- Mr. Avila to follow up with select VA sites that may be willing to complete phantom scanning quickly

Software Testing:

- The group discussed coming up with a plan for testing various analysis software packages
- Priority will be given to FDA approved software
- Two software options to consider were:
 - [Siemens VIA](#)
 - [HealthMyne, Inc.](#) (based in Madison, WI)
 - HealthMyne has software specific to lung cancer screening
- Trying to test the various software platforms may be daunting; a stepwise methodology was recommended
 - Dr. Mulshine suggested the possibility of organizing a challenge for software developers
 - Testing would also be done by BC members, along with repeat testing with multiple vendors
- Obtaining details on the various software platforms is important to aid with definition of bias and precision
- Feedback from Drs. Obuchowski and Petrick would also be helpful
- Mr. Avila is working on curating images acquired by Accumetra for testing algorithms
- A comprehensive list of software that may be feasible/accessible to test is needed

Scanner performance:

- Dr. Armato is working on serial analysis of acquisition and validation techniques using the CTLX1 phantom to determine how stable scanner performance is over time
- A challenge to obtaining data to aid with this process is that very few sites scan periodically
- Current results show scanners to be quite stable and good repeatability is being reported
- It would be ideal to present results at the upcoming 2019 RSNA Annual Meeting
- Dr. Armato and Mr. Avila to collaboratively work on the software conformance analysis
- Mr. Avila to get additional CTLX1 phantom data to Drs. Armato and Obuchowski by the end of April
- A special task force within the BC is being organized to look at these datasets, put together a matrix for software conformance, and assess what is possible

- Work with this task force may occur offline to keep this process moving forward
- Drs. Armato, Gierada Silva, and Mr. Avila to collaborate for this task force, though more participants are welcome
- The biggest risk for this project will be bias associated with small ellipsoidal volumes

Next Ellipsoid Phantom:

- Funding has been secured to distribute the newest phantom in Poland as part of a national lung cancer screening effort
- Previous CTLX1 phantoms were quite useful for site evaluation of acquisition parameters and scanner overall performances relative to the profile requirements but were criticized for insufficient mass for certain analyses.
- The new phantom will have a special insert that allows mass to be added, using water
- Optimum weight with water added will be 40 pounds, but the empty phantoms will be light in weight for shipping
- The new phantom will allow optimization of image quality with respect to dose for solid and non-solid lesions

Next calls and deadlines:

- CT Small Lung Nodule BC: *tentatively scheduled* for May 16th at 1 pm CT
- Also – for CT Coordinating Committee members, the next call is Monday, April 29th at 2 pm CT