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

29 March 2021 at 1 PM CT

Call Summary

In attendance			**RSNA**
Samuel Armato, III, PhD (Co-Chair)	Paul R. Garrett, MD	Juan Carlos Ramirez-Giraldo, PhD	Fiona Miller
David Gierada, MD (Co-Chair)	Artit Jirapatnakul, PhD	Anthony Reeves, PhD	Joe Koudelik
James Mulshine, MD (Co-Chair)	Nancy Obuchowski, PhD	Mario Silva, MD	Julie Lisiecki
Rick Avila, MS	Kevin O'Donnell, MASc	David Yankelevitz, MD	
Andrew Buckler, MS			

Moderator: Dr. Mulshine

General updates (all)

- Dr. Gierada suggested folding the conformance goals for the Profile into the QIBA Campaign goals
- Dr. Silva reported that he had received the CTLX1S phantom, had finished scanning and had submitted data to Mr. Avila the previous month
    - Mr. Avila indicated he would follow up with some additional details regarding which nodules to rescan
- Mr. Avila suggested that Dr. Silva, Armato, Gierada, Yankelevitz, and Jiraptanakul would be eligible for the QIBA ribbons that will be issued for conformance with the imaging quality portion of the Profile
    - He will follow up with each of them to see if they would like their institutions listed on the QIBA wiki
- Mr. O'Donnell expressed concern that using "conformant" on the image quality ribbon might confuse outsiders who could presume that there was complete conformance to the Profile
- Dr. Gierada suggested that using only the acronym for QIBA might not carry the same name-recognition as the full logo and name
    - Mr. Avila explained that the logo would be very small and very difficult to read in real use circumstances
- It was noted that the ribbons had been discussed and approved by the QIBA Sustainability Implementation Committee (QSIC) and QIBA Leadership
    - Mr. O'Donnell agreed to share his concerns with QIBA Leadership

Presentation: Modeling nodule measurement uncertainty using quantitative CT features (Dr. Jirapatnakul)

- Overview of curating an image library for small lung nodule measurement
- The goal is to personalize patient nodule management by developing a model to estimate the measurement uncertainty for a nodule using radiomic features
- A database of 100 nodules with multiple CT scans (4 or more within a few minutes) has been established
- This database is the first of its kind, and aspires to compute radiomic features on nodules in a consistent manner
- The model will check for associations between 46 graded features, normalization of variables, any non-linear associations, etc.
- Phantoms were scanned on the same scanner with different reconstruction algorithms, with different sized nodules and 3-4 different kernels
- Mr. Avila suggested the Lesion Sizing Toolkit as a helpful tool
- Pending IRB approval, the Mt. Sinai team intends to share the data with QIBA
- ***Acknowledgement***: The project has been funded by a grant from the *Prevent Cancer Foundation*

Statistical considerations with conformance testing (Dr. Obuchowski)

- Dr. Obuchowski discussed the difference in determining Profile conformance between those that are claim confirmed and Profiles that have not yet reached this stage
- If Profiles have reached claim confirmed (Stage 4), a lower confidence interval of 50% can be used for proving conformance (down from 95%)

- The first 3 sites participating in Claim Confirmed (Stage 4) will do the heavy-lifting and be held to the higher rigor of 95% confidence interval
- End users of the Profile (at Stage 4) will have a lower bar to prove conformance since the claim has already been proven valid
- The 50% confidence interval is arbitrary and has not been vetted yet within QIBA at the leadership level
- Dr. Yankelevitz noted that in practice, nodules in the range of 4-15mm are used to determine where growth assessment is critical, despite the Profile's use of 6-10mm based on literature meta-analysis
- Mr. Avila noted that while this would be ideal, the 4mm measurement has a high aspect ratio, which can add challenges
- *More details can be found in* Statistical considerations with conformance testing

Other business (Mr. O'Donnell)
- Mr. O'Donnell would like some resolution on the open MITA questions
- As these issues are now with QIBA Leadership, Mr. O'Donnell will follow up with Dr. Guimaraes offline

Wiki Updates for Technical Confirmation
- Mr. Avila to update Profile technical confirmation resolution sheet with latest details
- BC leaders / Mr. Avila to provide RSNA staff with documents to post on the wiki (e.g., the technical confirmation / feasibility surveys, technical confirmation feedback resolution spreadsheet, etc.)
- These details were discussed on recent calls (summaries can be found on the wiki)
- The "shalls" in the Profile needed to be translated to the checklist and vice versa for document alignment

Action items (ongoing)
- Mr. Avila to create checklists and divide assignments among relevant BC members

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Next call: *TBD for May per Dr. Gierada's clinical schedule*
