

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

17 September 2020 at 1 PM CT

Call Summary

In attendance

David Gierada, MD (Co-Chair)

James Mulshine, MD (Co-Chair)

Rick Avila, MS

Timothy J. Hall, PhD

Artit Jirapatnakul, PhD

Annelise Malkus, PhD

Nancy Obuchowski, PhD

Kevin O'Donnell, MASc

Mario Silva, MD

Daniel Sullivan, MD

RSNA

Fiona Miller

Julie Lisiecki

Moderator: Dr. Mulshine

Updates

- Dr. Gierada's article based on a small reader variability study that examined measurement in pulmonary nodules according to LUNG-RADS classifications was recently published in *Radiology*.
 - Gierada DS, Rydzak CE, Zei M, and Reah L. **Improved Interobserver Agreement on Lung-RADS Classification of Solid Nodules Using Semiautomated CT Volumetry**, *Radiology*, Published online, Sept 15, 2020.
 - <https://doi.org/10.1148/radiol.2020200302>
 - Reader agreement was high for manual reads and increased significantly with automated volumetry

Guidance for Quantitative Analysis of CT imaging for COVID-19

- A revision requested by *Radiology: AI* reviewers has been submitted
- This guidance was drafted in collaboration with the Lung Density BC to develop technical guidelines and examines what is standardized across vendors
- This document may be used to fast track future protocols and methods, though much work remains

Software Conformance Questions

- A requirement was added that a clinical site seeking conformance would need to test its software against 5 pairs of clinical cases
- This could be at two different timepoints, with the use of ellipsoids, or some combination of the two
- The purpose of this requirement is to validate that imaging works with the phantom and as a sanity check to ensure that the software is working as intended
- Because a clinical site does not have the time or manpower to perform a test with 30 sets of pairs, it was noted that as long as the software is validated by the software vendor, a check with 5 sets of pairs is satisfactory as a test for the site
- A test with 31 clinical cases for validation was recommended for the software vendor
 - If software is fully automated, no additional check is needed once a software vendor confirms conformance
 - If software is not fully automated, there will be a need to validate the operator along with the software as part of the process, which may be more challenging
- Dr. Obuchowski and Mr. Avila to discuss data challenges in greater detail offline

Profile / Checklist Harmonization

- The BC is working to resolve discrepancies between the Profile and the checklist, which will be posted to the QIBA wiki for reference by BC members by comparing specifications and "shalls"
- Keeping the checklist as brief and user-friendly as possible is recommended, as well as providing separate checklists for the main actors
- Mr. Avila is considering checklists for
 1. Automated tools
 2. A longer checklist for use without automated tools

or

 3. Checklist for vendors

4. Checklist for clinical sites

- It was determined that multiple checklists can be created and allocated to the appendices
- Mr. Avila to work on the checklists offline
- He will request help from BC members once he can break up the checklists for review by topic
- Dr. Silva reiterated that simpler is better, as too many options may be confusing to users

Action items (ongoing)

- Mr. Avila to create checklists and divvy up assignments to BC members offline
- Dr. Obuchowski and Mr. Avila to follow up offline re: software questions
- Mr. Avila is drafting two peer-reviewed manuscripts for 2020 publication, which will demonstrate the SLN conformance process and provide details regarding the data used to make decisions
- Mr. Avila to update Profile [technical confirmation resolution sheet](#) with latest details

Next call: 10/22/2020 CT Small Lung Nodule BC call, 1 pm CT

Virtual Workshop Reminder

- The [Quantitative Imaging Workshop](#) (QIW XVII), sponsored by the *Prevent Cancer Foundation* that will be presented via ZOOM, October 28-30, 2020