

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

22 October 2020 at 1 PM CT

Call Summary

In attendance

Samuel Armato, PhD (Co-Chair)
David Gierada, MD (Co-Chair)
James Mulshine, MD (Co-Chair)
Rick Avila, MS

Timothy J. Hall, PhD
Artit Jirapatnakul, PhD
Nancy Obuchowski, PhD
Kevin O'Donnell, MASc

Mario Silva, MD
Daniel Sullivan, MD
David Yankelevitz, MD
Gudrun Zahlmann, PhD

RSNA

Joe Koudelik
Julie Lisiecki

Moderator: Dr. Mulshine

Virtual Workshop Overview

- The [Quantitative Imaging Workshop](#) (QIW XVII), sponsored by the *Prevent Cancer Foundation* that will be presented via ZOOM, October 28-30, 2020
- Dr. Mulshine gave an overview of the topics and presenters for the workshop and invited all to participate
- Workshop topics will include metrology, QI, integration of combined modality approaches, management of early detected lung cancers, and formalizing quantitative assessment of COPD for prolonged tobacco use
- QIBA presenters will include Drs. Armato, Estépar, Fain, Giger, Kazerooni, Langlotz, Obuchowski, Petrick, Reeves, Siegel, Silva, Subramaniam, Sullivan, Yankelevitz, and Mr. Avila
- Dr. Mulshine hopes that this workshop will aid the SLN BC in determining future directions for the SLN Profile, including ideas for management of pre-symptomatic disease

Sustainability Efforts Update (Dr. Zahlmann)

- QIBA is advocating broader use of Profiles and is looking for ways to help groups develop a blueprint process
- The group was asked to consider whether it is possible for a site to be conformant to a “section” of the Profile, e.g., if the site passes the Accumetra assessment for the calibration and analysis sections of the Profile
 - The Accumetra service only assesses certain Actor parameters now but may assess more in the future
 - Automated assessment procedures are based on the SLN checklist and thoroughly discussed and approved by the BC
- Invicro, a CRO partner for QIBA, wants to build a similar automated analysis service for another modality based on the Accumetra model
 - They will be doing some testing at three academic centers in the UK, when the COVID-19 situation improves
- Dr. Zahlmann wants to understand the collaborative decision-making process that was used by the Small Lung Nodule BC to help other groups
- Dr. Yankelevitz explained that the process started as an inquiry with several academic centers agreeing to test phantoms with varying parameters to report back regarding inter-scanner consistency
 - After completing an assessment, results were compared and discussed with recommendations
 - For example, the recommended distance from isocenter out to the periphery was changed based on these test results
 - Committee members decided what measurements were necessary
- Dr. Yankelevitz mentioned that the next generation of Lung-RADS is in development and will include recommendations for volumetry
 - There may be an opportunity to include recommendations from the Small Lung Nodule Profile
 - He also mentioned an article referenced in [Nature Reviews Clinical Oncology](#) which highlights a Dutch and British study pressing for the use of volumetry for routine use in screening, related to the Dutch NELSON study
 - Oudkerk, M., Liu, S., Heuvelmans, M.A. *et al.* **Lung cancer LDCT screening and mortality reduction — evidence, pitfalls, and future perspectives.** *Nat Rev Clin Oncol* (2020). <https://doi.org/10.1038/s41571-020-00432-6>

Guidance for Quantitative Analysis of CT imaging for COVID-19

- Latest revision to the guidance document was rejected by *Radiology: AI* reviewers for not containing enough AI content; Mr. Avila is working on some revisions and will submit to another journal

Phantom Updates (Mr. Avila)

- Mr. Avila reviewed some technical considerations regarding parameters for the CLX1 phantom
- Pass-fail details do not reveal significant details for an acceptable level of variation over time
- More BC discussion regarding variation acceptability over time is needed
- The CTLX2 phantom will soon be distributed around the world with accompanying software
 - If agreed, this could be added to the Profile
 - Questions remain regarding dose vs. image quality and appropriate trade-offs
- A list of potential areas for SLN Profile improvement might be helpful for discussions

Action items (ongoing)

- Mr. Avila to create checklists and divide assignments among BC members
- 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: 11/12/2020 CT Small Lung Nodule BC call, 1 pm CT
