

QIBA CT Volumetry Biomarker Ctte (BC) Call

19 September 2016 at 11 AM CT

Draft Call Summary

| In attendance: | | | RSNA: |
|--|------------------------|----------------------|----------------|
| Jenifer Siegelman, MD, MPH (Co-Chair) | Lubomir Hadjiiski, PhD | Aria Pezeshk, PhD | Joe Koudelik |
| Gregory Goldmacher MD, PhD, MBA (Co-Chair) | Rudresh Jarecha, MBBS | Marthony Robins, PhD | Julie Lisiecki |
| Ehsan Samei, PhD (Co-Chair) | James Mulshine, MD | Na Sun, PhD | |
| Andrew Buckler, MS | Nancy Obuchowski, PhD | Ying Tang, PhD | |
| Rick Avila, MS | Michael O'Connor, PhD | Pierre Tervé, MS | |
| Heang-Ping Chan, PhD | Kevin O'Donnell, MASc | | |

NIBIB Annual Progress Report on Round 5 Projects

- Dr. Siegelman thanked everyone who contributed to the final report on Round 5 projects (2015-2016)
- The report for CT Volumetry is now complete

QIDW RIDER CT Dataset Update

- A "QIDW Data Inventory" Community has been created in the warehouse to host the [RIDER Lung CT dataset](#)
 - This [RIDER Lung CT dataset](#) has been specifically manipulated for demonstrating conformance with the Profile
- The warehouse has been migrated to a new platform (Girder) and is undergoing validation testing
- Dr. Erickson (Chair of the QIDW Oversight Cmte) has received approval from the TCIA to host the RIDER CT data on the QIDW, with the stipulation that the following original sources be cited:
 - 1) data source (Drs. Zhao/Schwartz)
 - 2) original study manuscript
 - 3) related publications (specified by NCI)
 - 4) host site (TCIA)
- The QIDW Oversight Cmte is finalizing the data upload agreement procedure with the data submitter, and is awaiting end-user validation testing of the new warehouse platform.

Profile Checklist (Mr. Tervé / Dr. Jarecha)

- The checklist is still a work in progress
- Vendors / manufacturers will be considered 'actors;' separate feasibility checklists (in Excel) will be developed for each 'actor' within the Profile
- Mr. O'Donnell will liaise with [MITA](#) (the Medical Imaging and Technology Alliance) for input regarding imaging parameters, etc.
- RSNA Staff to provide QIBA organizational contacts for CT Volumetry manufacturer volunteers

Profile Disclaimer Statement

- Since the Profile is not anatomy-specific, the BC decided to keep the existing claims (*that the performance values are valid for tumors across multiple organs*) and add a disclaimer that performance was calculated based on the RIDER lung-specific dataset only
- BC experts anticipate that performance in the liver and lymph will meet or exceed the performance in lung
- A disclaimer statement is still needed for the Consensus Profile
- Dr. Siegelman will provide text to request some example "disclaimer" statements from other organizations, such as the AAPM or MITA

Lung Cancer Screening Phantom Challenge

- Mr. Avila described recent crowd-sourced challenges he has conducted with simple, inexpensive phantoms to test the variability between the current latest lung cancer screening image acquisition protocols being used at multiple centers
- These tests agreed with results from the soon-to-be published ABIGAIL study

- A simple phantom constructed from 3 identical rolls of 3M scotch tape was used, along with
 - 27 clinical imaging sites
 - 54 CT scanners tested
 - 18 scanner models tested from GE, Siemens, Philips, and Toshiba
- Results indicated more variation than expected
- Sites were provided with immediate feedback and then corrected their parameters to match protocol requirements
- Important lessons from this study include:
 - It is easy to do lung cancer screening correctly and effectively if provided with the correct parameters and scale
 - Due to its simplicity and scalability, this phantom tool could be used to scale studies in many areas beyond lung cancer screening
 - Screening and Profile conformance could be easily monitored remotely
 - As this methodology is accessible to practitioners, it may further the mission of quantitative imaging

HU Density Changes WebEx Calls

- **Call #1: Tuesday, September 20th at 3:30 pm CT**
 - To discuss HU Density Changes deep within objects and Reconstruction Kernels, as related to Conformance procedures in the CT Volumetry Profile
 - requested by Mr. Avila to clarify concerns regarding data related to reconstruction kernels
- **Call #2: QIBA Lung Nodule Assessment in CT Screening Task Force: Wednesday, September 21st at 1 pm CT**
 - Mr. Avila to distribute his draft of the enhanced conformance section with background for review / discussion on the call
 - Mr. O'Donnell to provide guidance on Profile harmonization
 - Wording for release for general public comment with appropriate caveats to be discussed

Harmonization of the Lung Nodule Volume Assessment and Monitoring in Low Dose CT Screening Profiles

- Alignment between the two Profiles is especially important for the methodologically determined physics measurements
 - Methods across Profiles should be as similar as possible
- Solutions need to be scalable, in order to apply in many different settings

RSNA 2016 Poster

- Volunteers willing to help with poster design are asked to contact Dr. Siegelman: jsiegelman1@partners.org
- The poster will be divided into several sections:
 - 1) Current Profile / Value Statement
 - 2) Areas for further investigation, such as texture analysis and Mr. Avila's crowd-sourced phantom data
 - 3) Ways to drive home the "value" of QIBA message; e.g., demonstrate the magnitude of improvement possible when following the CT Vol Profile
 - 4) Solicitation of volunteers for the Profile Field Test
 - A handout could be provided at the poster, along with a QR code on the poster, to explain the purpose of the field test and the group's goals
 - An electronic sign-up, e.g. a Google form, could be utilized to capture potential volunteers
 - 5) Other topics to include:
 - ❑ Current Group 3A challenge results (Dr. Samei)
 - ❑ Update on the FDA liver phantom project (Dr. Petrick)
 - ❑ Update on the phantom nodule insertion project (Dr. Samei)
 - ❑ Update on the conformance section (Mr. Avila)

[Meet-the-Expert QIBA Poster Sessions at RSNA 2016](#)

- Engaged BC volunteers are encouraged to sign up for these lunch-time sessions to interact with RSNA Meeting attendees and garner support for the field test

Action Items

- Dr. Siegelman to provide text to RSNA Staff for a request for some example “disclaimer” statements
- Mr. O’Donnell to follow up with Dr. McNitt-Gray regarding wording used by AAPM as an example for disclaimer statements
- Dr. Petrick to provide FDA ‘lungman’ data to Dr. Samei
- RSNA Staff to provide QIBA organizational contacts for CT Volumetry manufacturer volunteers
- RSNA Staff to provide the sign-up link to the Meet-the-Experts Sessions at the QIBA Kiosk: <https://goo.gl/DMZbNI>

Next Call: Monday, **September 26th** at 11 am CT | Profile review | Next steps