QIBA CT Volumetry Biomarker Committee (BC)
17 August 2022 at 2 PM (CT)
Call Summary

In attendance   **RSNA**

Ritu Gill, MD, MPH (Co-Chair)   Sean Fain, PhD   Nancy Obuchowski, PhD   Julie Lisiecki
Rudresh Jarecha, MBBS, DNB, DMRE (Co-Chair)   Mathis Konrad, MSc   Kevin O'Donnell, MASc
Heang-Ping Chan, PhD   Peter Ngum, MSc   Nicholas Petrick, PhD
Vadivel Devaraju, PhD

Moderator: Dr. Jarecha

Discussion Topics:

- Potential challenge similar to former QIBA Group 3A challenge
- Planning for Stage 4 Study

Additional details captured in the recording (**Password**: 51!u0y7!)

Decisions/Action items:

Proposed challenge

- A challenge similar to 3A using the RIDER data on a smaller scale is under consideration
- Would like sites to use the same analysis software tool to limit variability
- This would provide an improved subset of data for Profile assessment
- Might include Dr. Samei's artificial simulated lesions from the phantom and clinical image datasets
- Work from Dr. Petrick's paper on the Lung Image Database Consortium (LIDC) assessment for reference: https://www.sciencedirect.com/science/article/pii/S1076633206003825.
- Dr. Gill to select the primary test dataset cases in September
    - Need to establish what the ground truth measurements are
    - Need testers to look for discrepancy cases and provide replacement lesions as needed
- Dr. Obuchowski to consider the number of radiologists needed to assess approximately 31 lesions and 14 modules
- Permission would be requested from participants to use segmentation and volume details of the lesions for publication
    - A potential publication would focus on analysis of observed inter- and intra- reader variability
- BC leaders to contact Mr. Buckler, as his company hosted the 3A Challenge data and completed the analysis
- Need to determine what type of data will be saved and where
- Training and clear instructions will be important to provide reproducible results
    - RIDER data contains lymph nodes, which increases complexity (will need to identify locations)

Planning for Stage 4 Study

- Request that QIBA Leadership would reach out to multiple sites
- Need to consider where data would be stored
    - A public cloud-based platform is needed
    - Consider asking 3 - 4 sites to collect clinical data for 30 patient lesions
    - Cross-check would be needed
- Details of organization and support TBD

New action items:

- Dr. Gill to select some new cases for the RIDER dataset for the assessment procedure
- Dr. Jarecha to look for candidates to provide cross measurements to aid with determining ground truth

- Dr. Jarecha to begin drafting some study guidelines for the Stage 4 study
- Dr. Obuchowski to consider an appropriate assessment of the number of radiologists needed for approximately 31 lesions and 14 modules
- Dr. Obuchowski to email the Process Committee working document on study guidelines to Dr. Jarecha (note – this is still in process)

Ongoing action items:
- Dr. Obuchowski to determine if a revised coefficient of variation is needed and share revised sample size plan
- Mr. O'Donnell will double check with Dr. Obuchowski and Mr. Buckler to determine the ideal number of cases needed from RIDER data
- Dr. Obuchowski to adjust section 4.4 to account for precision and bias
- Dr. Obuchowski's revised sample size plan to be shared with Dr. Beaumont (for possible Stage 4 study)
- Suggestion to build use cases for the payers (future Profile version)
- Consider guidance or training data going forward for radiologists to become better "quantitators"
- Other questions to consider:
  - Should the Profile retain repeatability requirements for the radiologist?
  - Should a test of bias and linearity be added?
- Hurdle remains obtaining the test-retest data due to subject exposure to ionizing radiation

Next Call: to be determined via doodle poll (approximately one month from now) – mid September

Shared Google document / stage 4 planning:
https://docs.google.com/document/d/1Wcmkzp8N_2lLL-FCykNPwgsn1BJOs7Z9A1ZyTIkuGCo/edit
- Group editing is welcome. All are invited to share ideas.

Reference: Data are available on the QIDW – https://qidw.rsna.org/ under CT modality datasets

Link to recording for 8/17/2022: https://rsna-org.zoom.us/rec/share/xapap_-MbDIhgUEA4ccV-1CZD0Fx91_wIvgyqPE5oy1yffDUQBsJ8qhlElWiBZlF.IBDww_l1bK6sp5Kn?startTime=1660762207000
Passcode: 51!u0y7!