QIBA Lung Density Biomarker Committee (BC) Call
Wednesday, June 24, 2020 at 2 PM (CT)
Call Summary

In attendance   **RSNA**

Charles Hatt, PhD (Co-Chair)   Timothy Hall, PhD   Nancy Obuchowski, PhD   Joe Koudelik

Miranda Kirby, PhD (Co-Chair)   Bernice Hoppel, PhD   Daniel Sullivan, MD   Susan Stanfa

Samuel Yoffe Ash, MD   Amin Motahari, PhD   Gonzalo Vegas-Sanchez-Ferrero, PhD, MSc

Raul San Jose Estepar, PhD

Moderator: Dr. Hatt

Lung Density Profile Update (Dr. Hatt):

- Dr. Fain has nearly completed addressing the public comments
- Once the BC completes the following tasks, it can declare its Profile as [Stage 2: Consensus](#):
    - Consensus is reached on all public comments
    - The completed comment resolution sheet is submitted to staff to post on the [Comment Resolutions page](#) on the QIBA Wiki
    - Checklists to be updated and Conformance Procedures established
    - Successful BC and CC votes to publish on the [Profiles Page](#) on the QIBA Wiki

Next Biomarker of Interest -- Deep Learning / Machine Learning Opportunities

- Discussion continued regarding the pursuit of deep learning for interstitial lung disease
- Dr. Hatt reminded the group about Dr. Humphries' recently completed study with visual qualification of emphysema using a classification algorithm for the COPDGene Study
- Consideration needed re: Claim development, as physical measurements are not involved
- Dr. Hoppel suggested deviating from lung density and consider pneumonia, which is a timely concern related to the COVID-19 pandemic
    - Recent publications have suggested that it was predictive of mortality or admission into ICUs
    - Dr. Hatt noted the importance of repeatable and reproducible measurements
    - Repeatability data (COVID scans) would be needed and Dr. Hoppel will send him some website links
    - It was noted that Mr. Avila, with the Small Lung Nodule BC has an operational website but is working on IRB issues
        - The group was cautioned that the data may be useful for exploration but not imaging science, as reconstruction kernels or slice thickness is unknown
    - Dr. Hoppel is aware of sites from which as many as 50 cases could be obtained; pneumonia data may also be included
    - Recently published guidelines on imaging for COVID-19 may lack protocols and necessary data
    - Recommendation to stay updated re: COPDGene efforts; CT protocols are being consistently followed
        - Lung Density BC members were asked to consider what groundwork could be done once the data are made available
    - COVID data needed from all four major vendor scanners; Dr. Hoppel has access to Canon data, but will reach out to Siemens, Philips, and GE contacts
    - Though methodology is not yet determined, the Lung Density BC plans to continue work in the direction of machine learning techniques; the group is well-positioned to assess the quality of deep learning-based biomarkers

Multi-parametric Metrology Related to Deep Learning:

- The QIBA Multi-parametric Metrology Task Force (TF) is trying to generate consensus regarding work with multiple quantitative imaging biomarkers (QIBs) and multiple parameters
- Suggestion to look to this group for guidance regarding lack of direct measurement and ground truth, i.e., is AI applicable to QIBA?

Action items:

- Complete resolution of public comments
- To allow extra time to address Profiles and other business normally covered during the usual QIBA Annual Meeting face-to-face breakout sessions, the July call will be 90 minutes long
    - o Discussion will focus on the Profile's advancement to Stage 2: Consensus

Next meetings: 7/22, 8/26, 9/23