QIBA Lung Density Biomarker Committee (BC) Call
June 28, 2017 at 2 PM CT
Call Summary

In attendance
Sean Fain, PhD (Co-Chair) Heather Chen-Mayer, PhD Stephen Humphries, PhD
David Lynch, MD (Co-Chair) Gonzalo Vegas Sanchez-Ferrero, PhD, MSc Philip Judy, PhD
Andrew Buckler, MS Charles Hatt, PhD Miranda Kirby, PhD

RSNA Joe Koudelik Susan Weinmann

Information from Dr. Fain’s agenda incorporated into notes

Proposed changes to Profile draft
- Updates made based on QIBA f2f meeting in May:
  - To include estimate of MTF from edge response function as preferred method (inclusion of reference from ISO standard provided by Dr. Estepar)
  - Spiromics CT protocols published in the Blue Journal do not meet dose specifications - alternative preferred protocols for Section 4 that will meet Profile Claims are needed
  - The following are to be revisited as Open Issues:
    - Calibration procedure in Section 4 to be revisited
    - Resolution of lobar segmentation and density analysis
      - Resolutions are not necessary to conduct density measure, but are useful
      - Setting a gold standard will be difficult; manual segmentation suggested as option
    - Airway measurements
  - QIBA-SRM phantom deemed the preferred method, but COPDGene phantom to be specified as minimum standard and reference in sections 4.1 and 4.2
  - Imaging sites may suggest using alternate phantoms, e.g., ACR Phantom
  - Better calibration procedures needed to reduce system variation
  - Comments from Dr. Lynch to be resolved
  - Issue regarding 10% difference in lung inflation issue has been closed
  - Checklist of remaining issues to be distributed to the committee
    - Results of software comparison
    - References to be finalized

Final Issues for Software Comparison
- Discussion on whether to allow multiple submissions per vendor
- Need to provide details regarding access to the “Test Scan Available” on the QIDW in appendix

New Action Items for Follow-Up from Face 2 Face:
- Empirical specifications from MTF measured using PSF derived from radial ERF using Round 1 data to be obtained
  - Drs. Chen-Mayer & Fuld assigned with help from Drs. Estepar & Vegas Sanchez-Ferrero
  - Note that MTF is assumed to have isotropic in-plane spatial resolution
- Supplementary proposal with COPD Gene (Depending on Renewal Outcome)
COPD Biomarker Qualification Consortium (CBQC) plans to submit a letter of intent to the FDA regarding CT as a biomarker of emphysema in clinical trials
  - No imaging standards developed yet
  - Submitting the Lung Density Profile to CBQC was suggested as initial collaboration and important supplement to the future “briefing document”
  - Dr. Lynch to spearhead this possible collaboration effort

A non-inferiority design for low vs. conventional dose CT was discussed
  - Noise decorrelation techniques to be tested (aims summarized by Drs. Estepar and Vegas Sanchez-Ferrero)
  - Iterative reconstruction methodologies and consistency across vendors

Field testing of QIBA lung density protocols should be supported

Benefits of volume adjustment methods against PFT outcomes and progression should be tested

Next steps:
  - Assign lead point person or team to follow-through with the proposal

Next call: Updates on the proposed comparative study will be discussed
Next call: Wednesday, July 19, 2017 at 2 pm CT