

QIBA Lung Density Biomarker Committee (BC)

Wednesday, October 26, 2022, 2 PM CT

Call Summary

In attendance

Charles Hatt, PhD (Co-Chair)

Miranda Kirby, PhD (Co-Chair)

Gonzalo Vegas Sánchez-Ferrero, PhD, MSc (Co-Chair)

Rachel Eddy, PhD

Raúl San José Estépar, PhD

Sean Fain, PhD

Stephen Humphries, PhD

Mathis Konrad, MSc

Hatem Mehrez, PhD

John D. Newell, Jr., MD

Sam Peterson, MS

RSNA

Joe Koudelik

Moderator: Dr. Hatt

The following topics were discussed:

- Lung Density Profile feasibility testing update for [Clinically Feasible Stage](#)
- Proposed reproducibility study

Discussion:

Lung Density Profile Checklist Update

- Dr. Hatt has created a Google doc for the new, streamlined lung density emphysema checklist
 - User feedback received from National Jewish and Brigham
 - Feedback from one more site needed to complete feasibility testing (Stage 3)
 - Hope to advance the Profile to Clinically Feasible (Stage 3) by Q1 2023

Reproducibility Study

- The COPDGene Ancillary Study is a software comparison study based on the new airway trapping Profile, similar to the previous lung density study
- Dr. Kirby to be listed as study PI and Dr. Humphries to be the COPDGene sponsor
- Both expiration and inspiration CT scans to be used
- Full series data for each subject to be requested from COPDGene
- Any sites participating in the proposed reproducibility study will need to complete a data use agreement (DUA) with National Jewish
 - Estimated number of participants is 8-10
- Distribution of images will be through National Jewish using Box as a transfer mechanism once participant DUAs are in place
- Study plan
 - Participants submit DUAs to National Jewish
 - RSNA Staff assign anonymous IDs
 - COPDGene shares clinical images with participants
 - Participants send results (tabular data) back to RSNA Staff
 - RSNA Staff send anonymized data to Dr. Kirby/analysis team

Action items:

- [Drs. Hatt](#) and [Kirby](#) to meet offline to update the COPDGene study proposal to reflect the current plan
- [Dr. Kirby](#) to send updated proposal to Dr. Humphries to include DUA detail and submission to COPDGene
- [RSNA Staff](#) to send list of previous Lung Density study participants to Dr. Kirby for contact details

Previous action items (please strike if complete):

- [Dr. Vegas Sánchez-Ferrero](#) to follow up with [Dr. Abadi](#) offline re: modeling for gas-trapping
- [Dr. Hatt](#) to share the streamlined checklists for the lung density / emphysema Profile with BC members
- [Dr. Hatt](#) has received feedback from Dr. Lynch re: the Radiologist portion of the checklist and will solicit input from Drs. Kazerooni and Newell
- [Drs. Kirby, Hatt,](#) and [Vegas Sánchez-Ferrero](#) to provide detailed plan of what specific additional resources will be needed for the proposed ~50 COPDGene subject software comparison study

- [Proposal needs approval by](#) QIBA CT CC and the QIBA Steering Committee
 - [Dr. Hatt](#) to look into existing studies (e.g., spiromics, etc.) that might be compatible with the Lung Density Profile to aid with reaching Technical Confirmation and validating the algorithms used
 - Plan to replicate software comparison study with gas-trapping Profile
 - [Mr. Avila](#) to follow up with Dr. Noël offline to discuss reproducibility and replication of 3-D printed phantoms
 - [Drs. Hatt, Mulshine,](#) and [Mr. Avila](#) to discuss a proposed combined Claim Confirmed (Stage 4) study with lung density and small lung nodule
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- [Dr. Fain](#) to follow up with a colleague, Alejandro C., regarding COPDGene papers, including FRC, Phase II, etc.
- [Dr. Hatt](#) to ask Dr. Newell re: spiromics data ancillary studies once paper has been published
- [Dr. Hatt](#) to connect with Dr. Abadi re: virtual imaging
- Volunteers needed to assist Dr. Vegas-Sánchez-Ferrero with segmentation work
- [RSNA staff](#) suggest contacting [Dr. Hoppel](#) re: the multi-site Lung Density “road trip” experiment data
- Standardized naming of actors across QIBA Profiles (medical physicist or image analysis core, TBD)
- Exploration of cross-sectional claim instead of longitudinal for gas-trapping Profile

Next meeting: January 25th, 2023

References: [Profile Stages page](#) | [Technical Confirmation Process](#) | streamlined Profile [conformance checklist](#)

- [Notes](#) posted to the [Lung Density BC QIBA wiki page](#) can be referenced for detailed descriptions of biomarkers
- Link to [Air-trapping Profile](#)