

QIBA Lung Density Biomarker Committee (BC)

Wednesday, September 21, 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)

Ehsan Abadi, PhD

Raúl San José Estépar, PhD

Stephen Humphries, PhD

Mathis Konrad, MSc

David A. Lynch, MB

Hatem Mehrez, PhD

John D. Newell, Jr., MD

Nancy Obuchowski, PhD

RSNA

Julie Lisiecki

Moderator: Dr. Hatt

The following topics were discussed:

- Lung Density Profile feasibility testing update for [Clinically Feasible Stage](#)
- Proposed reproducibility study
- Challenges re: Gas-trapping

Discussion:

Lung Density Profile Checklist Update

- Dr. Hatt has simplified the lung density emphysema checklist and broken it out by actor
 - Technologist feedback requested
- Informal meeting of QIBA BC members may occur at the [COPDGene Investigators Meeting](#)
- The checklist has an area for notes for providing feedback to make the checklist practical in a real-world setting

Reproducibility Study

- The COPDGene Ancillary Study Committee has expressed support for a reproducibility study; required forms must be filled out to proceed
- Any sites participating in the proposed reproducibility study will need to complete a data use agreement with National Jewish
 - An estimated number of participants would be helpful
- Distribution of images will be through National Jewish using Box as a transfer mechanism once paperwork has been approved

Challenges re: Gas-trapping

- [Dr. Ehsan Abadi](#) is developing a computational model which requires knowledge of the anatomy / physiology and materials; he welcomes collaboration and additional physiology expertise
- Quantification is affected by lung volume; ways to minimize effects at different respirations under consideration
- Models must consider functionality as well as anatomical composition

Action items:

- [Dr. Hatt](#) to share the streamlined checklists for the lung density / emphysema Profile with BC members
- [Drs. Hatt](#) and [Kirby](#) to meet offline to fill out COPDGene documents for reproducibility study
- [Dr. Vegas Sánchez-Ferrero](#) to follow up with [Dr. Abadi](#) offline re: modeling for gas-trapping

Previous action items (please strike if complete):

- [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
-
- [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 meetings: 10/26, 11/23, 12/21?

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](#)

[9/21/2022 recording](#) Passcode: =f#c8k\$V