

QIBA COPD/Asthma Technical Committee

May 30, 2012 at 2 PM CT

DRAFT Call Summary

In attendance

Philip F. Judy, PhD (Co-chair)

Paul Carson, PhD

Heather Chen-Mayer, PhD

Martin Connell, BSc

Barbara Croft, MD

Sean Fain, PhD

Michael Flynn, PhD

Bernice Hoppel, PhD

Frank Ranallo, PhD

Daniel C. Sullivan, MD

RSNA

Joe Koudelik

Julie Lisiecki

Scheduling of QIBA Annual Meeting and ATS Meeting Discussed

- Dr. Judy concerned about 2012 meeting overlap; RSNA staff to expand current review of possible meeting conflicts for spring 2013

Report from the 2012 ATS Meeting (Dr. Judy):

- People using CT could not decide on an appropriate metric
 - Dr. Judy considering a workshop to address this issue with one day on CT and one day on another imaging biomarker
 - This workshop would be organized in cooperation with the COPD Biomarkers Qualification Consortium (CBQC), as well as the COPD Gene Foundation
 - Drs. John Walsh (Alpha 1 Foundation) and Stephen Rennard would be involved
 - Suggested time frame was January 2013
 - A possible RSNA staff call might be needed to discuss support for this workshop
 - Suggested QIBA participants: Drs. Judy, Fain, Lynch, and Newell
 - From CBQC: Drs. Walsh and Rennard
- Clinicians, endocrinologists and pharma were all extremely concerned about radiation dose
 - Interested in other imaging biomarkers that do not utilize radiation such as:
 - Hyperpolarized gas
 - Oxygen-enhanced MRI (weighted imaging)
 - "Ultra-short Echo-time" – optimized signal from lung parenchyma measuring density
- Dr. Judy to send report to Dr. Sullivan on the specific topics of interest that came from this ATS meeting for consideration and input from the co-chairs of the consortium
- Dr. Fain suggested reminding the consortium that there will be a Pulmonary Functioning Workshop at the University of Wisconsin-Madison, in July 2012 it

Report from the 2012 QIBA Annual Meeting (Dr. Hoppel):

- Dr. Hoppel to provide her meeting notes to Dr. Judy
- COPD Gene was not discussed at the QIBA meeting, though it was referenced during a session on lung segmentation for segmenting out nodules
 - Similar to a process done by COPD groups
 - Dr. Hoppel plans to get more involved with the main CT group as a result
- Due to scheduling concerns for the QIBA meeting, SPIE was mentioned as a possibility for trying to get the group together for project work/ updates at a larger meeting venue

Airway Measurements Software Discussion

- Dr. Judy would like to present Dr. Fain's QIBA study concerning CT dose reduction findings to the CBQC.
 - However, there are limitations due to the lack of readily available software to evaluate airways.
 - Much imaging data will also be required, particularly airway slices.
- Dr. Judy proposed that a small team from the QIBA COPD/Asthma group collaborate to write an RFP for this type of computer program / freeware for the improved COPD Gene phantom in order to solicit a proposal to possible sponsors
 - Volunteers for this effort include: Drs. Fain, Hoppel, Judy and Mr. Connell.
 - Other possible volunteers: University of Iowa's Dr. Newell and Jered Sieren, as well as staff from VIDA
- Dr. Judy likes Dr. Estepar's *Airway Inspector* program; however, it is not very convenient for ease of use, and is not being supported with upgrades
- Task group to focus on features and measurements required for a useful software program for evaluation of airways
 - Important to analyze phantom with standardized analysis tool in order to eliminate variation that may be due to scan or software
 - Other suggestion was to put images up on the web and create a "challenge"

Other topics

- Mr. Connell has been working with Apollo'S PW2 and has gotten it to work
 - Dr. Fain asked that he demonstrate how he was able to use this solution; they will meet offline
- Naming convention for "NIST foams" to be determined
 - Group to develop common naming schema for improved COPDGene phantom

Next Steps

- Group to lay out summer activities and discuss overall agenda for the rest of the year
 - Phantom round robin
 - Airway measurements software RFP

Next call: Next COPD/Asthma Technical Committee update call: *Wednesday, June 6, 2012 at 2 PM CT*

Dr. Judy's present 3 year plans

1. We will narrow the profile efforts of the Technical Committee to a single quantitative imaging biomarker (QIB) for COPD. The identification of that QIB will be done in collaboration with COPD Biomarker Qualification Consortium (CBQC) during a workshop in Jan 2013. The profile for the chosen CT QIB will be completed by Sept 2013. In collaboration with CBQC, we work to get the CT QIB qualified by the FDA by Sept 2015.
2. We will identify the best computer algorithm for the measurement of airway dimensions. The first step will be the creation of a public domain computer program to analyze CT images of the improved design of the COPDGene Phantom developed by the Technical Committee. The program would be available by Sept 2013. This computer program will be used for quality assurance in treatment trials using the COPDGene Phantom and to optimize measurement of airway dimensions.
3. We will evaluate the utility of the COPDGene Phantoms with lung reference foams to correct for variations caused by different vendor design and reconstruction protocols. We plan to have scans of the Phantom obtained from 7 scanner models of all 4 major CT vendors by Sept 2013.
4. We will promote the development of normative CT lung density data to diagnose early emphysema. Normative data lung density data is CT densities obtained from non-smoking subjects.