QIBA Lung Density Biomarker Committee (BC)
August 12, 2015 at 2 PM CT
Draft Call Summary

In attendance
Sean Fain, PhD (Co-Chair)
Matthew Fuld, PhD (Co-Chair)
Andrew Buckler, MS
Charles Hatt, PhD

RSNA
Philip Judy, PhD
Greg Kinney, MPH, PhD
Nancy Obuchowski, PhD

Agenda:
- Presentation by Dr. Judy on topics of CT dose reduction on density measures compared to full dose scans
- Continue to reconcile how to use the vendor phantom scans to inform the specifics of the Profile

General Discussion:
- Dr. Judy gave an update regarding his efforts to reconcile low-dose expiratory scans to high-dose inspiratory scans using volume correction
  - Data were selected in which FRC and TLC lung volumes were approximately the same (CT volume ratio was \( \geq 0.9 \)); FRC volumes were acquired at \( \sim 1/4 \) the dose of the TLC scans.
  - Results demonstrated that systematic shifts were observed in the fraction of lung less than -950 HU towards higher values for the low dose scans compared to the full dose scans.
  - The degree of systematic error was greater as a function of the severity of disease.
  - A single correction factor; e.g. a shift in value to adjust the CT histogram is therefore not likely to work.
  - Data were limited to patients with the lowest BMI ranges
  - Noise was a confounding factor
- Discussion regarding how harmonization of the vendor scans should guide the target performance metrics in the Profile
  - There are two practical aspects for consideration:
    - Is it expected that users for the Profile will harmonize scanner performance using the COPD Gene phantom? Optimization of distribution
    - Will we incorporate AEC into the current draft of the Profile?
- Adaptation to patient sizes to allow harmonization across vendor platforms will likely be necessary
  - Due to the complexities, this topic will be revisited on the next call, August 26th
    - It was not yet determined whether AEC will be a part of the Profile at this time due to numerous complexities of harmonization across platforms

Action Items:
- Dr. Fuld to draft an appendix for the Profile to outline the details of vendor harmonization
  - Feedback welcome to Dr. Fuld: Matthew.Fuld@siemens.com
- Vendors to take notes on how harmonization is working while they are scanning
  - Results from vendor scanning will be used to inform the Profile
- Update on AEC project will be on the agenda for next call.

Next call: Wednesday, August 26, 2015 at 2 pm CT