COPD Gene CT Number Accuracy Conference Update (Dr Judy)

- Dr Crapo suggested that the Denver meeting be put on hold; suggested that COPDGene group meet f2f prior to the proposed vendor meeting to define agenda and needs
- Dr McNitt-Gray suggested to attend meeting due to his expertise in this subject area and to act as liaison between this and other QI BA activities

Status of evaluation of NIST and COPD Gene foams (Drs Judy and Levine)

- Two datasets from NIST scans being analyzed: micro-CT (10-12 microns) and mini-CT (125 microns)
- ROI propagated through 50 slices of four scanned foams
  - Micro-CT: 0.34 voxel size
  - Mini-CT: 0.12 voxel size
- Short length correlation is 0.1 mm in foam; difficult to make long scale correlation due to polycarbonate spacer and box artifacts, e.g. shifting CT numbers
- Calibration varied up to 300 units with box-to-box variation seen, e.g. change in x-ray absorption; analysis work continues and Dr Levine expects additional sense of what’s possible within the next few weeks
- No slice thickness issues observed; foam material may prove too homogeneous; does not mimic lung sufficiently
- Need an inhomogeneous bubbled foam material on a “CT scale” of approximately 1mm
- Need foam that can demonstrate whether slice thickness affects CT numbers
- Proposed to re-image without polycarbonate spacer leaving air-gap between all four foam samples
- Dr Judy sent COPD Gene phantom to Dr Torigian (UPenn) for medical-CT (600 microns) scanning

Profile update (Mr Buckler)

- COPD study design needs a framework to build upon
- Better evaluation of CT needed to better evaluate COPD
- Radiologist interpretation may be useful to classify and characterize better than density measurements, but reproducible readouts (QI readouts) still important as subjective radiologist reads
- Quantitative imaging remains critical for longitudinal studies

Repeating of the Kemerink Experiments

- Interest in a more anthropomorphic phantom with air (not foam) in trachea and with foam to mimic the lung, possibly big bubbles which are uniform on average but non-uniform on slice
- Dr Stoel to inquire whether he can borrow the Dutch phantom used for the Kemerink experiments
Status of modification of COPDGene Phantom

- Mr Levy (Phantom Laboratory) fabricating the COPDGene phantom annulus
- Dr Judy to study air trachea behavior once received

Next Steps:

- Rescan foam at the mini-CT level without acrylic box/spacers once returned by Dr Torigian (UPenn)
- Mr Levy (The Phantom Laboratory, Inc) to develop acrylic phantom annulus and send to Dr Judy for inspection/testing
- Drs Judy and Stoel to discuss next steps concerning foam material scanning
- Dr Stoel to inquire whether he can borrow the Dutch phantom used for the Kemerink experiments
- Mr Buckler to forward ancillary study design to group; requests feedback
- Next call scheduled for February 4th, 2010 at 2 pm CST (3 PM EST)