Breakout Group B
Technical Issues & Opportunities

May 3-4, 2012

CT Scanner Imaging Performance

- Large opportunity to bring down the number of parameters to the ones that really matter
- Interact with vendors to make scanRx simpler
- CIBR may be a place to discuss
- Would like a phantom that can be used to specify machine performance in terms of fundamental properties
- Need software to automatically validate
- Give resolution and accuracy for each parameter

- Workflow improvements are needed for lung cancer screening

- Critical
  - Reconstruction Kernel
  - Toshiba excluded from COPD trial – worked to fix
  - Scatter correction is really important
  - COPD: Biologic variability (center, TLC)

Recommendation: Specifying Acquisitions and Performance

- We need to break away from trying to specify every scan parameter for every scanner model
- A set of fundamental acquisition properties would better characterize acquisitions
  - 3D PSF
  - Contrast
  - Noise
- A phantom is needed to verify acquisitions and do QA
- More attention is needed on technique
  - Isocenter (technologist)
  - Scatter (manufacturer)
  - Lung volume TLC (technologist)

Quantitative Imaging Algorithms

- QIBA: Profile will be definitive using a 30% cutoff
- But the profile is only looking at the volumetric growth technical question
- Unmet need: response criteria for volumetrics for specific use cases
- Target
  - Clinical Acceptance is the first goal, but not well defined
  - Changing the standard of care
  - FDA: Qualification of a volumetric biomarker is probably years away pending the data
    - We can accelerate by increasing the amount of data available for analysis
- GAP: Problem with lack of RCT data. Looking for RCT data providers
- GAP: Work more closely with predictive or prognostic models based on genetic mutations

Radiation Risk/Benefit

- There are many factors to consider when making decisions on scanner settings and dose
- Further data is needed to more clearly outline the dose risk/reward for specific patient populations and disease conditions
- Further studies could better quantify dose/measurement error trade-off (including phantom studies)

Spectral CT

- Interest in exploring the potential of material decomposition