QIBA CT Volumetry Biomarker Ctte (BC) Call
01 February 2016 at 11 AM CT
Draft Call Summary

In attendance:

RSNA:
Samuel Armato, III, PhD (Co-Chair)  Eric Perlman, MD  Joe Koudelik
Vadivel Devaraju, PhD
Gregory Goldmacher, MD, PhD, MBA (Co-Chair)  Nicholas Petrick, PhD  Julie Lisiecki
Ritu Gill, MD, MPH
Jennifer Siegelman, MD, MPH (Co-Chair)  Marthony Robins, PhD
David Gustafson, PhD
Hubert Beaumont, PhD  Laura Strong, PhD
Andrew Buckler, MS  Ying Tang, PhD
Heang-Ping Chan, PhD  Kevin O’Donnell, MASc

State of the Profile (Mr. O’Donnell)

- Performance tasks are not yet finalized and need validation; final numbers need to be determined
- Sources of variance and repeatability coefficient numbers are much too large and may not be “pure” numbers
- Discussion needed among statisticians and groundwork study leaders regarding range of numbers for the Table of Assumptions, as follows:
  - Mr. Buckler: Group 3A Clinical Challenge
  - Dr. Kim: Group 1B study, Group 3A Pivotal Study
  - Drs. Fenimore / Lu: Group 1C study
- Top and middle performing values (point estimates) need to be checked for accuracy
- Drs. Kim and Obuchowski to work together to set up a range of numbers using a simple calculation of difference, as demonstrated by Mr. Avila’s “calculator” which he demonstrated at RSNA 2015’s QIBA Working Meeting
  - As a result of reviewing these numbers, a new statement will be added in the Profile table and expected precision for alternative scenarios will be updated
  - A number in the middle of the confidence interval spectrum would be preferred
    - Dr. Goldmacher to send a request to team members to check numbers
    - Dr. Obuchowski will send Word document table to Mr. Buckler, et al.

- Rationale for the claims:
  - Constraints on noise, resolution, iterative reconstruction, etc. must be consistent to achieve accurate performance values
  - To-date, no systematic test has been completed across vendor platforms to evaluate model-based iterative reconstruction vs. statistical iterative reconstruction
  - Physics experts within the CT Volumetry BC will be asked to address this issue and provide guidance

- Root issue:
  - Question regarding what assumptions are being made based on different implementations of an algorithm
  - Mr. O’Donnell will start an email thread on this topic for BC input, with a special request to physicists for input
  - Possible solutions include:
    - Providing a range of numbers
    - Providing a specific formula to determine confidence interval of the result
    - Quote performance for lower end (e.g., 10 mm lesion) and provide an “at least” number for higher end (e.g., 30 mm lesion) of scale

- Goal:
  - Profile to be released for public comment / published version as soon as possible
  - Plan to publish a Profile with caveats if need be, and discussion to continue on 2/8 call

Action items:

- Mr. O’Donnell to continue updating the Profile for BC comment and review on the next call on February 8th
- Drs. Kim and Obuchowski to confer on range of values for the confidence interval
- Statisticians / past Project PIs, i.e., Mr. Buckler, Drs. Fenimore, Kim, and Lu, to review numbers for feedback to Dr. Obuchowski
  - Plan for call on 2/22 to invite stakeholders to better understand goals of the Profile and value of QIBA

Next Call: Monday, Feb. 8th at 11 am CT | 2016 planning and review of the Profile and Next Steps