

QIBA Volumetric CT Group 3A Update
Thursday, 11 December 2014 at 11:30 AM CT
Call Summary

In attendance

<i>Maria Athelougou, PhD (Chair)</i>	Marios Gavrielides, PhD	Adele Peskin, PhD	Ying Tang, PhD
Hubert Beaumont, PhD	Gregory Goldmacher, MD, PhD	Nicholas Petrick, PhD	
Andrew Buckler, MS	Michael McNitt-Gray, PhD	Ehsan Samei, PhD	
Heang-Ping Chan, PhD	Nancy Obuchowski, PhD	Jenifer Siegleman, MD, MPH	RSNA
Matthew Fuld, PhD	Eric Perlman, MD	Daniel Sullivan, MD	Joe Koudelik

Presentation: Inter-algorithm Performance Investigation Studies (Dr Athelougou)

- Dr. Athelougou presented an overview of the past phantom and clinical algorithm challenges and how these would support CT Vol Profile refinement
- A manuscript has been submitted to *Academic Radiology* based on the phantom study component
- The clinical component focused on test-retest results while defining new metrics for clinical study
- Take-away message was that 8 of 12 algorithms performed up to QIBA compliance standards
- This groundwork provided data in support of the current CT Vol Claim language and established a foundation to build compliance testing upon in the future
- Continued 3A studies will require funding support for both design and data analysis

Source Precision Estimates (Dr Obuchowski)

- Caution voiced regarding the current CT Vol claim, based on longitudinal scenarios; this was deemed a very difficult scenario to obtain acceptable statistical precision
- A larger sample size will be needed to support the claim with statistical power
- A total estimate of precision is needed based on more challenging lesions shapes, sizes and anatomical positions
- Scanner and reader variability is needed; need to test for “actor” compliance
- Dr Peskin’s complete set of synthetic lesions would be most helpful; would require a carefully chosen clinical dataset to apply synthetic lesions for testing

Ideas for Future 3A TFG (Dr Athelougou & Mr Buckler)

- Creation of a platform (independent laboratory) to perform a multi-reader, multi-algorithm, multi-scanner study, i.e. a new vendor algorithm challenge in 2015-2016
 - This would bring algorithm developers and radiologists together
 - Vendors would be asked to volunteer algorithms for testing.
 - Participants would be able to test software remotely, providing anonymity and security via a cloud-based solution
 - The new study would be a volunteer effort unless additional funding is made available for 2015 – 2016. It is possible that some groundwork could be done without funding, saving funds for the study analysis.
- Simulation, or synthetic data will also prove very useful Dr Goldmacher will discuss the 3A TFG plans with the other CT Vol Co-chairs and dedicate a future Biomarker Cmte t-con to this topic for broader discussion and feedback

Next call: TBD - Group focus in January is to brainstorm possible study designs