Progress Update on “Technical Performance of Quantitative Imaging with Emphasis on the Precision of DWI and DCE-MRI in Oncology” (White Paper on Reproducibility Study Needs)

- This effort, led by Dr. Amita Dave, is motivated by the dearth of published test-retest data and inconsistency in how the data are collected and presented, especially in some sub-modalities like DCE and DWI.
- The goal is to standardize how the data are collected, analyzed and reported to be most useful for Claim development across various QIBA Profiles.
- Dr. Dave reviewed recent changes and content added to specific sections.
- Challenges for different body parts (brain, liver, prostate, head and neck) were recognized.
- QC procedures and error metrics still needed for various organ systems.
- Within subject coefficient of variation statistics presented by Dr. Obuchowski; all appear to be in sync with the performance specifications outlined in the Profile.
- Dr. Obuchowski wrote Section 2.1: Precision metrology: Repeatability and Reproducibility, containing:
  - Study design of test-retest studies
  - Importance of and steps for measuring repeatability and reproducibility
  - References of material from metrology workshop
- Discussion on using specific types of phantoms (dynamic or static) for test-retest studies; suggestion to add paragraph containing rationale regarding phantom selection.
- Separate paper on obtaining data during literature search process to be drafted and referenced in this white paper.
- Discussion on logistical issues with DCE follow-up scans, due to IRB (and funding) required and the toxicity issues with gadolinium contrast agents.
- While QIBA does not have policy on papers submitted for publication, authors to consult QIBA leadership to maintain a consistent message; Dr. Jackson to review, provide feedback, and sign-off.
- Manuscript for publication in the Journal of Magnetic Resonance Imaging (JMRI) to be submitted during Q1 2018; it will be presented to the editors and publication policy/guidelines/requirement information will be requested.
- Dr. Boss forwarded Dr. Kim’s paper, “Portable perfusion phantom for quantitative DCE-MRI of the abdomen,” to Dr. Dave for reference in this paper.
- Suggestions/input for this white paper can be submitted directly to Drs. Boss, Chung or Dave.
Round-6 DSC DRO Project Update (Dr. Erickson)

- Funded by QIBA/NIBIB Contract No. HHSN268201500021C
- To access the DRO modeling Web interface and create digital simulations of DSC perfusion acquisitions, click on the link in the QIDW tools section on the QIBA website at: http://www.rsna.org/QIDW/
  - This tool is not compatible with Internet Explorer browser
  - User may select 1 of 3 DRO models
  - User to choose values for the many different acquisition parameters and assumptions about the imaged tissue
  - Modeling website will then create a downloadable 4D DICOM image that simulates those acquisition conditions specified by the user; the Mayo model takes 13-14 minutes to download, others models may require less time

- Feedback on this DRO tool can be forwarded to Dr. Erickson
- Discussion on methods to publicize this tool for maximum utility within QIBA and beyond; suggestions included:
  - Word-of-mouth
  - QIBA Newsletter
  - Demonstration at an upcoming meeting

Next PDF-MRI BC Call: Wednesday, February 28, 2018 at 11 AM CT

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