QIBA DCE-MRI Subcommittee Update  
October 13, 2010 at 11 AM CDT

Call Summary

In attendance
Gudrun Zahlmann, PhD (Co-chair)  
Edward F. Jackson, PhD (Co-chair)  
Sandeep Gupta, PhD (Co-chair)  
Daniel P. Barboriak, MD  
Michael Boss  
Orest B. Boyko, MD, PhD  
Alexander Guimaraes, MD, PhD  
Gregory Karczmar, PhD

DCE-MRI Profile Update (Dr Gupta)

- Profile work in progress; more material to fill gaps and clarification on relevant questions needed
- Volunteers needed to help contribute since time is limited i.e., Profile needed by RSNA 2010 Annual Meeting
- Reference datasets and phantom imaging discussed; expected results from using this phantom needs further discussion
- Reference imaging datasets to be established
- Stringent and demanding analysis outline needed
- Quality control procedures to be documented
- Need to develop phantom recommendations even if based on preliminary results
- Phantom v3 to address cost efficiency, contrast response, spatial variation, and pulse sequence over time -- across multiple vendor systems
  - Need to confirm whether the MRI phantom version 3 is finalized
  - Profile wording required stating that MRI Phantom v3 is to be used in clinical retest activity also
  - Need to drive Phantom v3 forward as a validated QIBA phantom
  - Phantom details to be captured in the Profile appendix
- Current Profile does not address B1 inhomogeneity; flip angles will show spatial variations
- Dr Gupta to address Profile text concerning B1 inhomogeneity and circulate latest draft for feedback
- Exclusion criteria may be needed in Profile: “using site-specific procedures” proposed as suitable language

Additional Profile Considerations

- B1 inhomogeneity
- Exclusion criteria
- Patient positioning
- Injection rate
- Renal function
- Mitigation of motion affects
- Arterial input function
- Image analysis
- Ratio maps (may not have enough data)
- QC section needs additional work

Profile as a Reference vs. Teaching Document

- Teaching component to a point; perhaps a white paper could be Wiki posted to address additional teaching aspects
- Teaching doc will provide more detail as to why a parameter is to be used vs simply being a reference to follow
DCE-MRI Phantom Scanning Update (Dr Jackson)
- First phantom being repaired at MDACC
- Second phantom to be shipped from Duke directly to UC Davis for second GE site scans (Dr Buonocore)

Analysis of U Chicago Data Update (Dr Karczmar)
- U Chicago data shows multiple-frame DICOM data format (new format used by Philips) – sent to Dr Ashton for analysis but difficult to open; further discussion needed
- Drs Jackson and Karczmar to follow-up concerning next steps

NIBIB Contract Funding Update
- Protocol and new Phantom v3 activities need to be sent under NIBIB contract proposal
- Mr Joshua Levy (The Phantom Laboratory) contacted regarding fabrication of a commercial Phantom v3 prototype
- Mr Levy suggests replacing the 3 cm internal polypropylene tubes with 3 cm spheres; this deemed acceptable
- $4,000+ quote considered high; need to compete with ISMRI phantom in price
- Goal is 2-3 copies of phantom (v3) for a “Round-robin” type of testing
- Obtaining an additional quote suggested; using NIBIB funding support suggested

Next Steps:
- RSNA staff to coordinate t-con for Drs Zahlmann, Gupta and Jackson to discuss developing proposal for NIBIB contract support
- Drs Jackson and Karczmar to follow-up concerning next steps for data analysis difficulty encountered with Philips (U Chicago) data
- Dr Gupta to incorporate all current suggestions (e.g. B1 inhomogeneity, etc) and circulate an updated draft Profile for feedback
- Current Profile draft to be Wiki posted by RSNA staff
- Next call: October 27, 2010 at 11 am CDT