

## QIBA Perfusion, Diffusion and Flow – MRI Technical Committee Update Call

Wednesday, 03-April-2013 at 11 AM CDT (GMT-6)

### Call Summary

#### Participants

Michael Boss, PhD

Andrew J. Buckler, MS

Thomas L. Chenevert, PhD

Daniel Gembris, PhD

Alexander Guimaraes, MD, PhD

Hendrik Laue, PhD

Jiachao Liang, PhD

David E. Purdy, PhD

Mark Rosen, MD, PhD

Ying Tang, PhD

#### RSNA

Joe Koudelik

Madeleine McCoy

#### Proposed Agenda (Dr. Boss)

- Feedback and response regarding the DWI Phantom design
- Initial draft of the Liver Protocol

#### DWI Phantom Update (Dr Boss)

- DWI phantom design feedback discussed
  - Adding plexiglass blocks should be considered to assist in creating phantom asymmetry to help identify axis of rotation
  - Coils to use, internal vial sizes and the best temperature measurement technique discussed.
  - Phantom fill port on the flat bottom will be fully accessible
- **Liver Protocol (Dr. Boss)**
  - The apparent diffusion coefficient values measured in normal liver at 1.5T was displayed in a table (ME Miquel et al, *In vitro and in vivo repeatability of abdominal diffusion-weighted MRI*, Brit. J. of Radiol.) and discussed.
  - Specific discussion regarding- higher b-values/lower ADC: do differences in ADC values arise from lack of high b-values or because of incorporation of b=0?
    - Current liver protocol reads that b-values should be greater than or equal to 800, which may be overly restrictive
    - b>800 leads to low SNR, which can bias measurements
    - Upper limit for b-values needs to be determined
  - Balance must be struck between the usefulness of prescribing high b-values for quantitative DWI leading to lower levels of acceptance and the qualitative value of low b-value images for identifying tumors.

#### Next Steps:

- Phantom design discussions to continue offline; comments or feedback to be directed to Dr Boss
- Drs. Boss and Ashton to follow up offline regarding partial volume effects (i.e., Gibbs Artifacts)
- Dr. Boss will be available for April 17<sup>th</sup> t-con, discussion topics include:
  - Continued discussion of DWI profile's liver protocol
  - Upcoming meeting with IMI-QuIC-ConCePT at ISMRM