

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

Wednesday, 12-December-2012 at 11 AM CDT (GMT-5)

### Call Summary

#### Participants

Gudrun Zahlmann, PhD (Co-chair)  
Michael Boss, PhD  
Andrew J. Buckler, MS  
Martin Buechert, PhD  
Thomas L. Chenevert, PhD  
Patricia E. Cole, PhD, MD  
Barbara Croft, PhD  
Greg O. Cron, PhD

James R. Ewing, PhD  
Daniel Gembris, PhD  
Sandeep N. Gupta, PhD  
Thanh B. Nguyen, MD  
Thorsten Persigehl, MD  
David E. Purdy, PhD  
Rohit Sood, MD, PhD  
Ying Tang, PhD

Xiangzhi Zhou, PhD  
Yong Zhou, PhD

#### RSNA

Joe Koudelik  
Madeleine McCoy

### General Discussion

- Dr. Boss reviewed the progress made on the DWI Profile and the claim.
- The goal is to have the claim as organ-specific as possible and fitting the template devised through the Metrology Group.
- Inclusion of bias is required within the claim language.
- The Profile will include trace or mean MRI and will not include unidirectional gradients.
- Claim language discussed regarding bias in ADC and degree of claim specificity to different organ systems.

#### Previous Claim:

Using monoexponential fitting of DW-MRI data acquired at 1.5T or 3.0T, tissue water mobility in tumors can be characterized using  $ADC_{b_1-b_2}$  with a 15% test / retest coefficient of variation. This claim holds for solid tumors greater than 1 cm in diameter, or twice the slice thickness, whichever is greater.

#### New Claim (wordsmithing to continue):

$ADC_{b_1-b_2}$  is a measure of tissue water mobility determined by applying different b-values to a patient and fitting the resulting signal intensities. When acquiring ADC values in solid tumors greater than 1 cm in diameter or twice the slice thickness (whichever is greater), one can characterize *in vivo* diffusion with a 15% test / retest coefficient of variation.

#### DWI Profile discussed (Dr. Chenevert)

- Dr. Chenevert will maintain the same format of the DCE-MRI Profile and incorporate the QC ACRIN ice-water DWI Images. Comments welcomed on the sections/aspects and performance parameters.
- Target performance levels for site certification details (i.e., sample tables) were described in detail:
  - DWI Phantom Target Performance Standards
  - DWI QC test sequence

#### Next Steps:

- Dr. Boss will follow up with Profile section authors to maintain momentum
- Dr. Boss to wordsmith the DWI Claim language and circulate before the next t-con
- The Committee was encouraged to review Dr. Chenevert's QC section details (recently distributed and wiki posted); feedback requested by Dr. Chenevert.
- Next t-con: Wednesday, January 9, 2013 at 11 am (CST)