

QIBA DCE-MRI Technical Committee Update

Wednesday, January 11, 2012 at 11 AM CST

Call Summary

In attendance

Edward F. Jackson, PhD (Co-chair)
Daniel P. Barboriak, MD
Michael Boss, PhD
Orest B. Boyko, MD
Martin Buechert, PhD
Paul L. Carson, PhD
Barbara Croft, PhD
Jeffrey Fete, MD
Daniel Gembris, PhD
Alexander Guimaraes, MD, PhD
Luna Hilaire, PhD
Rajan Jain, MD
Yuan Le, PhD

Jiachao Liang, PhD
Estanislao Oubel, PhD
Thorsten Persigehl, MD
Michael Rosenthal, MD, PhD
Annette Schmid, PhD
Daniel C. Sullivan, MD
Kyunghyun (Kyung) Sung, PhD
Ying Tang, PhD
Ona Wu, PhD

RSNA

Joe Koudelik
Madeleine McCoy

Updates on NIBIB Projects

- Phase 1:
 - Data Analysis Software (Dr. Jackson for Dr. Ashton): discussed accessing the analysis software and legacy phantom data
 - Dr. Jackson has restored some prototype phantom v2 data and will upload this to the dedicated RSNA FTP site once compatibility with the data analysis software is confirmed. Once this confirmation is complete, the FTP site will be announced to the Tech Ctte.
 - Test datasets will all be made available before the next t-con.
 - Digital Reference Object (Dr. Barboriak)
 - Milestones are being reached and progress continues.
 - The lab website (<https://dmlab.duhs.duke.edu/>) has been updated with the v3 T1 model images (with noise) as well as “answer images”. The noise free v6 Tofts model test data are also available.
 - Dr. Barboriak requests answer images in 32-bit Analyze format, if possible, from anyone who has or has access to T1 analysis and/or DCE analysis software. The answer images can be emailed directly to him.
 - Phantom (Dr. Jackson)
 - 4 copies of the DCE-MRI Phantom (II) are being fabricated at The Phantom Laboratory; delivery to MDACC expected no later than February 10, 2012.
 - Reduced fabrication costs due to materials redesign allows for 4 additional phantoms to be produced; 8 total phantoms potentially available for clinical trials (i.e., Dr. Rosen’s Phase 2 Test/ReTest project) and/or for field testing purposes.
 - Process description within the DCE-MRI Profile (v2.x) needed to request a phantom and the procedure to collect and analyze the data.
 - Once phantoms arrive at MDACC, Dr. Jackson will mix and add filling solutions, then distribute to the acquisition sites using Philips, Siemens and GE equipment.
 - There was discussion about the incorporation of the phantom (and profile) in clinical trials and the need, therefore, for identification of pharma contacts. Of course, Dr. Zahlmann is already incorporating some of the profile requirements at Roche and has expressed interest in obtaining copies of the phantom when available. There was a suggestion that the group should also contract Dr. Jeffrey Evelhoch about field testing the profile and phantom at Merck.
- Discussions were held between Dr. Sullivan, Dr. Prior (TCIA) and Mr. Freymann (NBIA) to address QIBA user requirements and features of existing image archives. This process is currently in the data-gathering phase and it was noted that Dr. Prior and Mr. Freymann will follow-up with Dr. Jackson for discussion of archive needs/details.

- Phase 2:
 - Dr. Rosen (ACRIN test/retest prostate DCE/DWI protocol)
 - Time will be allocated on the next t-con so Dr. Rosen can provide a test/retest project update
 - The 3T protocol (DCE-MRI and DWI) in prostate is being readied for re-submission to ACRIN

Diffusion Weighted MR (DWI) Project Proposal (on the QIBA WIKI)

http://qibawiki.rsna.org/index.php?title=DCE-MRI_tech_ctte

- Proposal to extend the task spectrum of the QIBA MR Modality Ctte by adding Diffusion Weighted MR (DWI) as the next MR Tech Ctte
 - Feedback was encouraged by all DCE-MRI Tech Ctte members so that proposal may be submitted to the QIBA Steering Committee during the face-to-face working meeting on February 1st in Chicago.
- If a DWI Technical Committee (or addition of DWI to DCE-MRI Technical Committee charge) is approved, DWI-specific technical committee members to be decided
 - Drs. Guimaraes and Boss (NIST) volunteered to be a part of this group with the understanding that there will be membership overlap with the DCE-MRI Technical Committee.
 - Recommended invitees: Derek K. Jones, PhD (JonesD27@cardiff.ac.uk); Anwar R. Padhani, MB, BS, FRCP, FRCR (anwar.padhani@stricklandscanner.org.uk); Peter J. Basser, Ph.D (pjbasser@helix.nih.gov); Dow-Mu Koh, MD, MRCP, FRCR (dowmukoh@icr.ac.uk); Neil Rofsky, MD (neil.rofsky@utsouthwestern.edu); Bachir Taouli, MD (bachir.taouli@mountsinai.org); Thomas Chenevert, PhD (tlchenev@umich.edu)

Initial Discussion Regarding Future Projects

- Dr. Sullivan provided an overview of the NIBIB application for extension of funding process and requested committee members to provide feedback concerning future biomarkers and associated groundwork tasks to pursue.
- Potential new biomarker efforts needed; focus on biomarkers that will be available in the next two years.
- It was proposed by Dr. Carson that MR Volumetrics be considered. This would require the identification of specific settings, e.g., oncology settings in neuro, liver, breast, prostate, as the specifics of the volumetric approach will be site specific with regard to the optimal segmentation technique, motion correction technique, pulse sequence(s), etc.
- Dr. Barboriak proposed that the group consider 3.0T specific issues, including the need for B1 mapping and corrections. It was also suggested during the group discussions that parallel imaging issues should be considered. (The current Profile does not support the use of parallel imaging.)

Follow-up Discussions Regarding the QIBA Compliance Process

- The 11.15.11 document is in a holding pattern until phantom data are gathered and analyzed. It is proposed that the compliance component of the profile be expanded in v2.

Next steps:

- Dr. Rosen to provide Round-2 test/retest project update on next TC call.
- Finalize the proposal for DWI for the Steering Committee F2F on 2/1/12. Dr. Jackson would like any comments or changes sent to the co-chairs (or RSNA staff: jkoudelik@rsna.org) before the next DCE-MRI TC t-con.
- The next QIBA DCE-MRI call is scheduled for January 25, 2012 at 11 am CST