

**QIBA DCR-MRI Technical Committee Update**  
**April 3, 2009, 10:00am CDT**  
**Call Overview**

In attendance:

Gudrun Zahlmann, PhD (Co-Chair)	Gregory Karczmar, PhD
Jeffrey Evelhoch, PhD (Co-Chair)	Despina Kontos, PhD
Michael Buonocore, MD, PhD (Co-Chair)	Janie Petti, RT
Daniel P. Barboriak, MD	David E. Purdy, PhD
Andrew Buckler, MS	Mark Rosen, MD, PhD
Geoffrey D. Clarke, PhD	Annette Schmid, PhD
David Clunie, MBBS	Katherine Scott, PhD
John Freymann	Thomas Yankeelov, PhD
Igor D. Grachev, MD, PhD	RSNA
Luna Hilaire, PhD	Joe Koudelik
Edward F. Jackson, PhD	Mary Cerceo

**General Discussion:**

**Synthetic DCE-MRI data update (Dr Barboriak)**

- Preliminary synthetic data version posted with fixed DICOM headers ([http://qibawiki.rsna.org/index.php?title=Synthetic\\_DCE-MRI\\_Data](http://qibawiki.rsna.org/index.php?title=Synthetic_DCE-MRI_Data))
- Newer version to be released soon in XML format
  - DICOM headers are listed in text fields, thus editable information
  - Converting from XML to DICOM format possible - fully interchangeable
- Synthetic data is applicable to the FNIIH prostate study
  - Need more protocol clarity and test data
- Test data is only in QIBA area - restricted to request/invite to access
  - Web site (Dr. Barboriak's lab) administration needed to allow access to QIBA participants only
  - Open source data structure proposed - allowing free access - this was approved by TC Co-Chairs
  - Greater viewer number and feedback anticipated once open source
- Drs Barboriak and Jackson to discuss the use of the QIBA Wiki to host the synthetic data
- Synthetic dataset created for a specific trial use - need greater input/feedback/assumptions of what data should look like for additional uses

**Initial phantom QC acquisition scan data update from MD Anderson (Dr Jackson)**

- Five sets of data from each phantom acquired
  - Position A-B-C-D-A° rotations
- Changes/departures made to the acquisition parameters based on these initial scans
  - Documented on the QIBA Wiki at: [http://qibawiki.rsna.org/index.php?title=Proposed\\_Changes\\_to\\_Acquisition\\_Protocol\\_-\\_20090315\\_-\\_E\\_Jackson](http://qibawiki.rsna.org/index.php?title=Proposed_Changes_to_Acquisition_Protocol_-_20090315_-_E_Jackson)
- Data submitted to Dr Ashton at VirtualScopics for analysis
  - All imaging software in place
  - Contrast to noise calculations nearly done
- Coronal images from phantom show background irregularities (artifacts)
  - Partial volume artifacts created by internal phantom plate structures when doing background signal corrections
  - Background maps of fluid are helpful, but difficult to work with in this phantom

- Comparisons between spheres and background may need to be compromised due to intrinsic phantom issues
- Scanning axially proposed (orthogonal 3-D plane not needed)
  - More uniform data produced with this method
  - Temporal resolution will drop if axial scan performed, will have to cover additional sections to capture all eight spheres
  - Ratio corrections in axial scans work better per Dr Ashton
- Dr Jackson to send subset of data (axial scans) to Dr Ashton for further analysis
  - Wait for feedback from Dr Ashton
  - Drs Zahlmann, Evenlhoch and Buonocore to determine preference for axial vs. coronal scans based on proposed discussion with Dr Ashton
- Once scanning preference determined, send phantom(s) to next imaging site(s)
- Characterize T1 relationships across all scanners also needed
- Focusing on sphere data for this study proposed

### **Prostate Cancer Study - FNII Biomarkers Consortium Project Update (Dr Evenlhoch)**

- fNII Prostate study to begin 4<sup>th</sup> quarter of 2009
- Test, re-test and treatment effects study with prostate cancer patients
- fNII and QIBA DCE-MRI Technical Committee efforts are complementary
- Combining studies proposed (piggy-backed onto the fNII prostate study), but after further review, decision made not to include QIBA sub-study
- Include renal cell patients in the QIBA test, re-test study would help integrate the approach
- Next Step: Develop initial concept of the QIBA test, re-test study (Dr Evenlhoch)

### **Next Steps:**

- Coronal vs. axial phantom scan issues
  1. Co-Chairs to discuss scan issues with Dr Ashton
  2. Co-Chairs to discuss issues with team
  3. Team to determine course of action
- May need to reinstate weekly DCE-MRI group calls
- GE scanner data to be sent to VirtualScopics if Dr Jackson's protocol changes are acceptable
- Slides displayed on by Dr Jackson on this call are available upon request (and on Wiki) (<http://qibawiki.rsna.org/index.php?title=DCE-MRI>)
- Next call scheduled for Friday, April 17, 2009 at 10 AM CDT (U.S.)