

**QIBA fMRI Subcommittee Update**  
**November 17, 2010**  
**11 am CST**

Call Summary

**In attendance:**

*Cathy Elsinger, PhD (Co-Chair)*  
*Jeffrey Petrella, MD (Co-chair)*  
*Scott Small, MD (Co-chair)*  
Andrew Buckler, MS

James L. Reuss, PhD  
Daniel C. Sullivan, MD  
Douglas M. Tucker, PhD, MBA  
James T. Voyvodic, PhD

**RSNA:**

Joe Koudelik  
Julie Lisiecki

**Introduction and Welcome for Dr. Scott Small**

- Dr. Small considering position as a third co-chair on the fMRI Subcommittee
- Interests include fMRI and research work with functional imaging
- Electro-physiologist and neurologist - interested in the vagaries of quantification; focuses on very small sub-regions of the brain in fMRI work; exploring different fMRI variables and CBV approach for both humans and mice

**Overview of QIBA Goals (Dr Sullivan)**

- Brief overview of RSNA and its membership composition
- Discussed QIBA efforts related to quantitative measurement; many stakeholders involved, e.g., researchers, clinicians, industry personnel, etc
- QIBA focus is on numbers generated from scanner hardware and software that process data
  - How quantitative data is extracted from images is crucial to increasing accuracy and precision in measurements
  - Understanding how numbers will be used in a clinical setting is important
  - Goal is to improve accuracy and precision of numbers generated from images as well as a clinical context in which these numbers are to be used
  - Subjective qualitative measurements - highly variable; difficult to integrate into a scientific foundation

**BOLD Activation**

- BOLD might be made quantitative, but many issues still remain; need more robust metrics to track change over time
- More quantitative outcomes/ readout measures needed; BOLD activation mapping may be made quantitative in time

**Dr. Voyvodic**

- Use case imaging - functional imaging takes many forms - focus is on pre-surgical imaging
- fMRI important in diagnosing, tracking natural changes over time, and tracking therapeutic interventions
  - Need to make fMRI more quantitative and robust for functional imaging
  - Important to understand what is required from industry and a different disciplines to make this work

**Dr. Petrella**

- Context of use for pre-surgical planning is important, consideration of image modality/ interpretation, and how use aids in neurosurgical decision-making
  - Are the decisions uniform or reproducible?
- In tracking, there is often a single number, whereas in surgical planning, the focus is on the output, not one number
- The more important take-away from the discussion is that we are looking for an overall pattern over time

**Profile Progress Update (Dr Sullivan)**

- Dr. Sullivan discussed the Profile concept
- Profile Claims are disseminated widely to vendors and users
- Profiles contain results of findings in the document
- QIBA as a group is trying to address gaps in the Claims language

### **NIBIB Funding and Deadlines**

- Oncology biomarkers -first priority for funded projects; may be more funding available for foundational activities
- Submit proposals for review to the QIBA MR Modality Committee by December 16<sup>th</sup>, 2010

### **Central Data Archive Overview (Dr. Sullivan)**

- Accumulate publically available datasets; there is definite need for a central archive
- Data analysis on accumulated data would be very helpful
- Cases would need to be made; there is no formal process for this procedure

### **DICOM Work Group Update (Dr. Tucker)**

- Coordination of the data is needed, along with separate storage
- Challenge - coming up with a sufficiently generic workflow to embed within DICOM headers for manufacturers' devices
- Asked the group to review the workflow documents on the WIKI:  
[http://qibawiki.rsna.org/index.php?title=FMRI\\_subctte](http://qibawiki.rsna.org/index.php?title=FMRI_subctte)
  - Compare documents to create an "ideal methodology" for Profile development
  - More specific and detailed data may be needed
- Presented QIBA fMRI slide deck at DICOM Work Group 16 meeting in D.C.; slides to be posted to Wiki for reference  
[http://qibawiki.rsna.org/images/7/7a/DrTuckerSlides\\_2010\\_11\\_WG16.ppt\\_-Compatibility\\_M.pdf](http://qibawiki.rsna.org/images/7/7a/DrTuckerSlides_2010_11_WG16.ppt_-Compatibility_M.pdf)

### **Future Steps**

As a group, consider addressing the issues of:

1) Perfusion, 2) CBV, and 3) breath hold

- Continue working on Profile development
- Dr. Elsinger suggested that there may be other committees working on additional questions in the future

### **fMRI Reproducibility Work Group (Dr Voyvodic)**

- Dr. Small to join the fMRI Reproducibility Work Group; invited to discuss his work findings/ universal concerns
- Additional discussion needed concerning tasks people are using within the fMRI Reproducibility group
- Next fMRI Reproducibility Work Group call is scheduled for December 7th, 11 am CST

### **fMRI SubCtte Next Steps:**

- RSNA staff to post Dr. Tucker's slides from the D.C. DICOM WG16 meeting on the QIBA Wiki
- RSNA staff to add Dr. Small to the fMRI Reproducibility Work Group calls
- Next call date: Wednesday, December 8<sup>th</sup>, 11 am CST