DSC Update (Dr. Wu)

- The DSC Profile version 2.0 was reviewed and discussed
  - Now in the revised template format
  - The following open issues were discussed:
    - How to specify the acquisition (E.g. spin echo vs. gradient echo, flip angle, pre-load)
    - Whether to limit field strength and create different claims for each field strength
    - Whether to limit claims to tumors in white matter
  - Metrics were chosen based on the frequency of appearance in the literature and usefulness
  - “Actor” responsibilities need to be refined
  - The formation of the claim statements was explained
    - Language is written, but numbers are to be determined
    - Four longitudinal, two cross-sectional and one phantom-based claims are included
  - Those interested in having a copy of the DSC Profile and/or submitting feedback were asked to email Dr. Wu at ona@nmr.mgh.harvard.edu
  - Dr. Wu to consult Dr. Obuchowski regarding claim development
  - Guidance was requested regarding the purpose of the pre-delivery section; guidance from the Process Committee needed whether this is a mandatory section heading

- Literature Results
  - PubMed search
    - The search strategy used was: “Dynamic susceptibility” OR “MR perfusion” OR “perfusion MR” OR “DSC MRI” OR “Perfusion MRI” OR “MRI perfusion” OR “CBV dynamic”
    - 2477 citations were yielded
    - 755 articles are remaining for review
    - 792 articles are DSC-related
    - 23 reproducibility studies are included
    - 4 serial studies
• Metadata are being extracted from the articles
• All articles found during literature search were imported into Zotero, then categorized
• A spreadsheet was created to organize and track the progress of the article review
• Volunteers were requested to review and flag articles

• Status of Round-5 Funded Projects
  o Dynamic Susceptibility Contrast MRI Phantom
    • Phantom Layout
      ● Same as DWI phantom, consisting of 13 vials
      ● 6 vials with increasing concentration of contrast agent in 2 orientations, with central vial to be used for reference with 0 concentration

  • Components
    ● NIST is currently experimenting with different contrast agents which do not change in T1 with increasing concentrations
    ● Targeting R2* values up to 30 1/s

  • MRI Acquisition Protocol
    ● Preliminary protocol was prototyped for the Siemens Trio that is compatible with clinical DSC acquisitions for brain tumor patients
    ● Protocol was shared with NIST/Colorado and preliminary data were acquired
    ● The phantom and acquisition parameters are currently being refined

  • Software Analysis
    ● DSC TF members are working with Drs. Chenevert and Malyarenko at the University of Michigan to utilize their ROI placement code with DSC data

Other Business
• Upcoming PDF Task Force Updates:
  o June 22 – DCE
  o July 6 – DTI
  o July 20 – DWI
  o August 3 - DSC

Next PDF-MRI Biomarker Committee Call: June 22, 2016 at 11 AM CDT (DCE TF update is scheduled)