QIBA Dynamic Contrasted Enhanced (DCE) Biomarker Committee (BC) Call
Thursday, July 5, 2018 at 11 AM (CT)
Call Summary

Participants

Hendrik Laue, PhD (Co-Chair)    David Clunie, MBBS     Edward Jackson, PhD     Joe Koudelik
Caroline Chung, MD (Co-Chair)   Andrey Fedorov, PhD     Nancy Obuchowski, PhD    Susan Stanfa

Moderator: Dr. Laue

Floating Point DICOM Presentation (Dr. Fedorov)
- During the ISMRM annual meeting in Paris, available DCE BC members gathered to discuss the DICOM conversion freeware initiative from the ISMRM perfusion group.
- Topics included:
  - Welcome and background
  - Introduction: problem statement and aim of this initiative
  - Standardization of data - DICOM for Quantitative Imaging (DCQMI): what DCMQI is, what it does and how it works
  - Demo of DCMQI as a command line tool and implementation example as a library
  - Discussion: what would deter use, what is missing and next steps on a global scale

- For DCE BC members who missed the DICOM meeting during the ISMRM annual meeting, Dr. Fedorov provided his and Dr. Clunie’s presentation on “DICOM Parametric Maps: Capabilities of the standard and supporting tools” (slides may be found at: http://bit.ly/dcmdce4ismrm)
    - Overview of “State of the art” in research practice and in commercial tools
    - DICOM definition of Parametric Map IOD: “a multi-frame image representing pixels with real world values”
    - Voxel values: multi-frame and floating point
    - Meta-data is included in the standard definition of the PM object
  - Relevant capabilities (advantages of DICOM over the alternatives) of the DICOM standard were described
    - Structured communication of critical information otherwise stored using ad hoc solutions: composite context, quantity/units semantics, references to source data
    - Result can live side-by-side with other DICOM data
    - Can be adopted and implemented by commercial/clinical tools
    - Floating point pixel data
    - Can be cross-referenced and is harmonized from DICOM Structured Reporting objects calculating measurements over regions defined on parametric maps
- **DCMQI** (a free, open source library that implements conversion between commonly used imaging research formats and the standard DICOM representation)
- Remaining challenges and open issues were discussed

- **Suggestions and insights made during this presentation included:**
  - Closer collaboration is needed among DICOM, ISMRM, QIBA
  - Greater specification relating to encoding would be beneficial to ensure complete and reconstructible data storage; on the other hand, it needs to be ensured that the profile does not get too technical for the intended audience
  - The critical deidentification process would limit how data can be shared
  - Standard of care in clinical trials
  - In addition to producing Profiles, QIBA groups elucidates/documents the issues
  - More support needed with DCE BC Profile efforts; greater participation encouraged

- **Action items:**
  - Drs. Clunie and Fedorov to read the latest version of the DCE Profile on Google docs at: [https://docs.google.com/document/d/1in76va1Q96tVX97RWHqimOHxCeDsMqh98na8pwOb8/edit?usp=sharing](https://docs.google.com/document/d/1in76va1Q96tVX97RWHqimOHxCeDsMqh98na8pwOb8/edit?usp=sharing) and provide suggestions and content for the appendix
  - Discussion needed regarding the DICOM standard and how it is implemented in QIBA Profiles; support needed for encouraging implementation of existing standards in the form of recommendations (not requirements)
  - Feedback by QIBA groups to Dr. Clunie regarding the contents of DICOM was encouraged
  - Due to low attendance on the July 5 t-con, follow-up discussion with Drs. Clunie and Fedorov on this topic to be scheduled

**DCE Profile Update**
- Section 3 to be shortened
- Section 4: additional discussion on assessment procedures needed

**Next DCE BC Call:** Thursday, July 19, 2018 at 11 AM CT