QIBA Dynamic Contrast-Enhanced (DCE) MRI Biomarker Committee (BC) Call

Monday, June 8, 2020 at 11 am (CT)

Call Summary

In attendance		**RSNA staff**
Hendrik Laue, PhD (Co-Chair)	John Carrino, MD, MPH	Joe Koudelik
Caroline Chung, MD (Co-Chair)	Nancy Obuchowski, PhD	Susan Stanfa
Michael Boss, PhD		

Moderators: Drs. Chung and Laue

Profile Progress

General

- There have been many edits made to the DCE-MRI Google Doc Profile since the May 11 call

Section 3.13: Image Analysis

- Detailed discussion of algorithmic steps for parametric image calculation can be found in Appendix C
- Recommendation to include only information necessary to meet the Claim in the body of the document; other details should be relocated to the appendices
- Because it is not necessary for Claim definition, agreement to delete the text, "Generate a B1 Map; a B1-Map needs to be obtained for the FOV of the dynamic and VFA sequence, especially at field strength of 3T and above," from methods to be used to apply motion correction to the dynamic data in Appendix C: Detailed description of Image Analysis

3.13.2 Specification Table

- It was noted that while Ktrans is a common metric and the biomarker of interest in this Profile, it may not be the only one; suggestion to include others, e.g., general kinetic model (GKM) or eGKM (extended GKM)
- Recommendation to leave in eGKM and Dr. Laue to look up details in the Peled publication

Section 4.1 Assessment Procedure: R1/T1 Mapping accuracy and signal saturation

4.1.3 Testing sequence for signal quantization errors - T1/R1 Phantom imaging

- The NIST Phantom-lending library is referenced, but specifics are needed re: phantom availability, the software analysis package offered, target start date for this program, etc.; Dr. Laue to follow up with Dr. Russek (NIST)
- Suggestion to consider using a phantom that is considerably less expensive and easier to develop than the ISMRM system phantom; it can also be temperature-controlled
- It was noted that all that matters is that the phantom has known grown truth that can be easily evaluated using software; Dr. Laue to provide open-source software that anyone could use
- The vote-to-release the Profile for public comment need not be delayed due to missing values; the text can be altered as details materialize
- Dr. Laue to follow up with Dr. Bosca re: adding phantom data; Dr. Boss offered to organize a t-con

4.1.3.1 Discussion on B1 Mapping

- This was originally in a 4.1.3 B1 Mapping subsection in "Testing sequence for signal quantization errors," but a separate discussion section was created
- Consensus was that B1-mapping should be addressed; options were to move them to Section 3 or the Appendix
- It was noted that no solution is currently available to make B1-mapping correction feasible for all Profile users

- Explanatory text to be included regarding B1-mapping, noting that it is highly recommended and improves results, but due to missing information, it could not be required in the Claims
- Vendors may eventually make it possible for all to perform B1 correction
- Valuable feedback on this issue may be received during public comment
- Recommendation to highlight this issue when drafting a white paper on the DCE-MRI Profile

4.2: Assessment Procedure: Image Analysis Software

- Significantly shortened and moved details to Appendix G

Appendices

- Appendix A: Acknowledgements and Attributions – the list provided by RSNA staff was added
- Appendix C: Detailed description of Image Analysis - "Apply motion correction to dynamic data" was added as one of the recommended methods
- Correction to be made re: duplicate Appendix Gs (Acquisition Protocol and Vendor-Specific B1 mapping)
- Drs. Laue and Lavini to discuss whether the appendix including B1 mapping details is too long
- The body of the Profile text should be as concise as possible; Dr. Boss to raise the issue of appendix length during an upcoming Process Cmte call, i.e., what is ideal and what is too long
- It was recommended that all information be retained for the Stage 1: Public Comment version; changes, including trimming, may be made later
- Dr. Boss noted that a DWI Profile core-editing group worked between scheduled QIBA calls; this resulted in a more efficient process and accelerated the release of the Profile for public comment

Next steps

- Dr. Laue to complete the Appendices
- Organ/site-specific recommendations for motion correction for DCE-MRI to be included in Appendix G
    - Dr. Chung to review literature and confer with Dr. Liu; she will also reach out to physicists re: brain, head, and neck
    - Dr. Laue to review literature and confer with Dr. Lavini re: breast and prostate
- Dr. Chung to download the Google Doc Profile, convert it into a Word version and ensure that references are all included and in the correct order
- Dr. Boss to review the Word version of the Profile prior to the DCE-MRI BC vote-to-release
- The goal is to distribute the Profile for public comment by Summer of 2020

Next call: Monday, June 22, 2020 at 11 a.m. CT
