

QIBA Dynamic Susceptibility Contrast (DSC-MRI) Biomarker Committee (BC) Call

Wednesday, October 9, 2019 at 11 a.m. (CT)

Call Summary

Participants

Ona Wu, PhD (Co-Chair)

Laura Bell, PhD

Michael Boss, PhD

Hendrik Laue, PhD

Yuxiang Zhou, PhD

RSNA

Joe Koudelik

Susan Stanfa

Moderator: Dr. Wu

2019 RSNA Annual Meeting

- A broad, high-level perspective regarding the impact of quantitative imaging (QI) is the goal for 2019 QIBA Kiosk posters vs. the technical updates done in the past
- The 2019 posters will be modality-based, rather than BC-based; MR groups elected to divide the content between two posters
- Posters to be less technical and contain minimal text (more clean space and fewer blocks of text)
- Specific use cases for QI (both clinical and research) to be highlighted using images with accompanying captions
- Discussion regarding poster content:
 - Focus on the ability of QI to improve reproducibility and reduce measurement variability
 - Since the DSC-MRI Profile has not been released for public comment or used in a clinical trial, attention will be placed on the potential of the Profile
 - Show how the DSC-MRI Profile can be used and the value it would add to the imaging community; e.g., it would shrink the bounds of measurement in terms of uncertainty and inaccuracy
 - Physical phantom round-robin
 - Stability of phantom and ability to obtain longitudinal measurements across sites and time
 - Technique demonstrated the sensitivity to small differences in agar concentration within the vials; as well as small differences across vendors
 - Sensitivity of this technique would be a benefit/have positive implications re: in vivo data
 - Dr. Wu to submit cross-sectional images of the two different phantom types being used for site benchmarking
 - Function of DROs to assess the measurement errors introduced by software analyses
 - Workflow format or comparison of different software (SW) packages
 - Evaluate SW to better understand how well it can assess physical parameters and identify best SW packages for intended application
 - Caution that content must remain vendor-neutral; use of "Vendor A, B, C" suggested
 - Suggestion to request content from Dr. Erickson, who was the PI on the DSC DRO project
- The four MR CC Co-chairs (Drs. Boss, Elsinger, Rosen and Zahlmann) are overseeing the poster development process, with Drs. Boss and Rosen organizing the layout
- Offline call could be scheduled if additional discussion regarding DSC-MRI BC content is needed
- DSC-MRI Co-chairs to send content to Dr. Boss (mboss@acr.org) by the end of October

DSC Profile Update

- A Google Doc version of the [Profile](#) is available to all DSC BC members (Google Chrome browser recommended)
- Commonality between DCE-MRI and DSC-MRI Profiles was discussed
 - DROs
 - Dearth of test-retest data (the DSC-MRI BC used only one test-retest data publication)
 - Use of contrast agents and their associated issues
- The DSC-MRI BC to develop a scenario table demonstrating coefficient of variation (CoV) based on three main Actors (scanner, reader and image analysis software) to address issues with lack of inter-reader reproducibility
 - Resulting CoV to illustrate the importance of keeping Actors constant, and the negative effects seen when any variability is introduced
 - The table would contain the CoV for every possible scenario to determine the minimal detectable difference/change, e.g., all Actors held constant vs. one, two, or three Actors changed
 - A Claim for true change would be generic (i.e., contain “x” or “y,” rather than specific CoV values); the Profile user would be referred to the table to select the appropriate value and insert it into the Claim
- The DSC-MRI conformance checklist was reviewed and there was discussion on similarities and differences to DCE-MRI, whose checklist needs to be drafted
- Contrast agent and contrast injector are kept separate within the DSC-MRI Profile, as different actors may be involved with each; DCE-MRI combines them
- The DSC-MRI BC provides instructions in their Profile for building a phantom, but it is only experimental (no commercial phantom exists)
- The DCE-MRI Profile may use NIST’s phantom-lending service, which is currently under development
- The link to the DSC-MRI [Profile](#) has been included in call summaries; staff to also include on t-con call-in detail emails
- DSC-MRI BC members were asked to make notes in the Profile, using “[Suggesting Mode](#)” (rather than making direct changes to the text)

Reminder:

- Please [RSVP for the Dec. 4 QIBA Working Meeting](#) during the 2019 RSNA Annual Meeting
- Please [sign up for the RSNA 2019 MTE Sessions](#) at the QIBA Kiosk:
 - Type in your name next to the presentation time slot that works for you (we encourage that each 30-minute time slot is filled by at least one committee member)
 - Simply close out of the document (there is no save button and changes will automatically save)

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Next DSC-MR BC Call: Wednesday, November 13, 2019 at 11 a.m. CT

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