

QIBA MRE Biomarker Committee Call

Tuesday, November 17, 2015 at 3 PM CT

Draft Call Summary

Participants

Patricia Cole, PhD, MD (Co-Chair)

Thomas Chenevert, PhD

Edward Jackson, PhD

Nancy Obuchowski, PhD

Suraj Serai, PhD

Claude Sirlin, MD

Sudhakar Venkatesh, MD

RSNA

Joe Koudelik

Susan Weinmann

Draft Claim & Statistical Methods Meta-Analysis (Dr. Obuchowski)

- “A measured change in hepatic stiffness of D% indicates that a true change in stiffness has occurred with 95% confidence if $D > 22\%$. If Y_1 and Y_2 are the stiffness values (in kPa) at the two time points, then the 95% confidence interval for the true change is $(Y_2 - Y_1) \pm 1.96 \times \sqrt{[Y_1 \times 0.08]^2 + [Y_2 \times 0.08]^2}$ kPa.”
- For consistency among Profiles, claim statements should follow a standard structure
- Image acquisition outliers reinforced the need for specified optimal performance parameters
- Statistical methods regarding meta-analysis were compared in efforts to mitigate variability among multiple reviewers when independently determining the percent repeatability coefficient and effective sample size from each article
- The updated forest plot graphic constructed of the %RC estimates from each of the 12 articles in the liver reproducibility MRE literature review was discussed

Image Acquisition Protocol (Dr. Venkatesh)

- MR Elastography of liver image acquisition protocol was discussed
- Optimal parameters recommended based on GRE will be used for the Profile
- The Profile claim is to be based on GRE since there is abundant literature support
- A literature search will be conducted in order to compare GRE to Spin Echo-EPI, before integrating SE-EPI into the claim language
- A discussion ensued regarding the range of slice thickness; it was decided that there be an acceptable target provided as well as the ideal delineation (10 mms)
- While broad recommendations regarding equipment will be made in the general Profile, specific recommendations will be included in the appendix
- Additional discussion on sequential acquisition is needed

Literature Search (Dr. Serai)

- An overview of the literature search strategy for liver MRE reproducibility focused on databases searched, search strategy, search terms and limits used
- The Mayo Clinic library search resulted in 309 articles and the University of Cincinnati library search yielded 450 articles
- Identified studies were screened independently and then verified reciprocally by Drs. Serai and Venkatesh
- A manual search was performed to identify additional references that may have been missed by the initial search methods
- Experts in the field were consulted to identify additional published studies
- After detailed manual review of the search list provided by the libraries, 24 articles were included for analysis
- Dr. Serai will work on providing additional details, and will share them with Dr. Venkatesh and MRE BC members

Next Steps:

- Move onto Profile and protocol on the next MRE BC call
- Return to acquisition and discuss how to handle particular MR parameters
- Collect vendor recommendations on sequential acquisition parameters
- The claim statement template, Profile template and information regarding Appendix D content can be found on the QIBA wiki at: http://qibawiki.rsna.org/index.php?title=Main_Page

The next MRE BC Call is Tuesday, November 17 at 3 PM CT [Moderator: Dr. Ehman]