QIBA Contrast Enhanced Ultrasound (CEUS) Biomarker Committee (BC) Call

Friday, June 11, 2021; 11 AM CT

Call Summary

Additional notes provided by Dr. Averkiou

In attendance		**RSNA**
Mike Averkiou, PhD (Co-Chair)	Stefanie Y. Lee, MD, FRCPC	Joe Koudelik
Richard G. Barr, MD, PhD (Co-Chair)	Michelle Robbin, MD	Julie Lisiecki
Paul Carson, PhD	Giovanni Valbusa, BS	
Sherwin S. Chan, MD, PhD	Bino Varghese, PhD	
Christian Greis, PhD	Stephanie Wilson, MD	
Connor Krolak		

Moderator: Dr. Averkiou

Approval of 5.14.2021 call summary

- The last call summary was approved as presented.

Literature Review Update

- Dr. Averkiou explained that he and Dr. Varghese shared their reviews and insights regarding papers focused on reproducibility on the last call, and that he hopes other literature reviewers will share updates on future calls.

Announcement

- The 35th International Bubble Conference will be an in-person meeting in Chicago, IL, Sept 29th – Oct 1st, 2021.

Discussion

- Clinicians shared their perspectives regarding clinical applications with reproducibility
- Various possible studies were discussed including the following:
    - Liver lesions (mostly longitudinal studies)
    - Kidneys lesions – surgical or interventional (may not provide enough follow up)
    - Prostate
    - Neoadjuvant chemotherapy for breast (in vivo)
    - Papillary lesions
    - Irritable bowel disease (IBD)
        - Dr. Chan noted that IBD is important to study for children also, as it is becoming more prevalent in this population; he also mentioned early ischemic disease detection
        - IBD applications provide opportunities for better reproducibility studies and immediate clinical applicability
    - Cerebral perfusion to identify early ischemic disease
    - Rheumatological diseases / inflammation in the joints
        - Time-intensity curves could clarify variability, particularly for vascular components
    - Applications for gastroenterology and MSK of growing interest

- Variability amongst machines is an issue that can be addressed with standardization of the CEUS protocol (data type, curve fitting, which parameters to extract), as it was successfully done in the published QIBA manuscript
- The Profile will reflect the published in vitro studies that included comparison of software, scanners, and variability from day-to-day, and at different timepoints
- Dr. Averkiou plans to use the reformatted QIBA Profile Template, which centers around the Checklist, and has a streamlined introduction and executive summary

Analysis software Discussion

- BC members stressed the need for widespread adoption of VueBox and other software (QLab, TIC Analysis, custom, etc.), which is essential for quantitative clinical CEUS, e.g., IBD; unfortunately, VueBox it is not currently available in North America and the other company software only works on the individual data acquired from their specific scanner
- Availability of linearized data was also discussed, as it is a requirement for quantitative analysis

- Dr. Averkiou intends to invite manufacturers to a call to discuss the possibility of providing linearized data for quantification
- Dr. Averkiou suggested that if the full version of VueBox cannot be distributed in North America, a simplified ("stripped down" version named "QIBA-version") for researchers would be appreciated
- Access to linearized data from the scanner manufacturers together with a QIBA analysis protocol could open the way for other researchers to perform the analysis without needing proprietary software

Endnote: For reference details in Endnote and Excel formats, please email Connor Krolak at: krolakc@uw.edu

Action items

- Dr. Averkiou to invite manufacturer reps to discussions regarding linearized data and CEUS needs
- Share additional literature review on bolus transit reproducibility from Drs. Erpelding, Greis, Long, and McCarville
- CEUS BC SMEs are asked to get more involved with the Profile activities
- Participation from BC members with experience with the QIBA Profile-writing process is crucial
- Dr. Chan volunteered to review 3-4 articles for clinical applicability

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The next scheduled calls will be as follows at 11 am CT, unless otherwise noted:

07/09	No call
08/13	CEUS BC

RSNA Staff attempt to identify and capture all committee members participating on WebEx calls. However, if multiple callers join simultaneously or call in without logging on to the WebEx, identification is not possible Call participants are welcome to contact RSNA staff at QIBA@RSNA.org if their attendance is not reflected on the call summaries.

Helpful Resources (**QIBA wiki**):

- **Profiles** | **QIBA Profile template** | **How to Write a QIBA Profile** | **Claim Guidance** | **US Shear Wave Speed Profile**
- All Profile Editors are encouraged to join the QIBA Process Committee to learn about QIBA writing tips and processes and network with other Profile Editors to exchange best practices

QIBA Process Committee:

Kevin O'Donnell, MASc (Chair): KOdonnell@MRU.MEDICAL.CANON | Michael Boss, PhD (Chair): mboss@acr.org