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

Friday, June 24, 2016; 11 AM CT

Call Summary

In attendance

Michalakis (Mike) A. Averkiou, PhD (Co-Chair)
Richard Barr, MD, PhD, (Co-Chair)
Shelby Brunke, PhD
Paul Carson, PhD
David Cosgrove, MD
Vinay Duddalwar, MD, FRCR
Edward Grant, MD
Kenneth (Ken) Hoyt, PhD
Timothy J. Hall, PhD
Alex Jackson, PhD
Christine Kalli, MSc
Eric Perlman, MD
Vladimir Reiser, PhD
Michelle Robbin, MD
Theresa Tuthill, PhD
Stephanie Wilson, MD

RSNA

Julie Lisiecki

Moderator: Dr. Barr

Welcome / Introduction (Dr. Barr)

- Dr. Barr welcomed CEUS BC members and outlined goals for the committee
- Drs. Barr and Averkiou, co-chairs, are researching funding that may be available from alternate resources
- The CEUS BC intends to collaborate with engineers to develop a uniform output from the most widely-used machines
- The group also wants to develop standardized parameters for the following:
    - dynamic range
    - vascular volume
    - flow-related parameters
- **Plans to achieve these parameters will include the following:**
    - Use of a simple flow phantom to obtain groundwork research
    - Experiments across different systems and sites, using different software and measurements
- **Additional goals include:**
    - Determining which scanner manufacturers may be interested in the BC efforts
    - Minimizing micro bubble construction
    - Establishing and validating US data for a finalization scheme
    - Removing noise
    - Quantifying vascular volume and flow
    - Quantification of a tiny area within recommended ROI
    - Determination of exact volume and flow parameters

Overview of CEUS BC Project Goals (Dr. Averkiou)

- **Purpose for the CEUS BC:**
    - To standardize quantitative CEUS to use as a biomarker of perfusion and tumor response to therapy for colorectal and other liver metastases, hepatocellular carcinoma (HCC), and for inflammatory bowel disease.
    - For the clinical benefits to be applied widely and for specific contrast kinetic measures to become biomarkers, standardization of the exact method, equipment, and software is required.
- Please see the posted items on the QIBA wiki for details:
    - Project description
    - Summary table of project description at-a-glance

Overview of QIBA Profiles and Process (Dr. Perlman)

- Dr. Perlman, *QIBA Vice Chair*, gave a brief overview **QIBA Profiles and Processes**
    - QIBA Profiles standardize methods to create biomarkers that meet a claimed performance (accurate and reproducible).
    - The Profile is a performance requirements document for quantitative imaging
    - If possible, it is best to focus on one Profile claim, e.g., a specific quantitative performance metric

- Each issue must be parsed accordingly to find supporting scientific literature
- Gaps in the literature must be identified
- Identification of the clinical use case is an important starting point, utilizing the QIBA Profile Template

- More information is available in the following locations:
  - https://www.rsna.org/QIBA/
  - https://www.rsna.org/QIBA-Profiles-and-Protocols/
  - https://www.rsna.org/QIBA-Process/
  - http://qibawiki.rsna.org/index.php/Profiles
  - http://qibawiki.rsna.org/index.php/QIBA_Profile_Template
  - http://qibawiki.rsna.org/index.php/Profile_Conformance

Additional Members Wanted

- Members with expertise in the following areas are needed:
  - Manufacturers
  - Data/Research
  - Clinical

Mendeley Research Tool

- QIBA Mendeley Group -> Literature Database - | QIBA Mendeley Group
- *Literature for the QIBA SWS BC has been compiled using Mendeley, and is called 'QIBA SWS'.* This is a public group.
- If you would like a specific invitation to join, please email Dr. Mark Palmeri: mark.palmeri@duke.edu.
- Dr. Carson, *QIBA Ultrasound Scientific Liaison*, mentioned that there are two components to the Mendeley tool –
  - web-based component
  - desktop off-line component
  - Occasional synching is required by users to keep these two versions updated

Round-6 US Project Priority

- Following QIBA Steering Committee (SC) directives, the CC leadership has decided that their priority will be SWS proposals that will aid with Profile completion.
- Final selections will be made at the July 21st QIBA SC meeting; PIs will be notified mid-August

Action items

- Dr. Barr to follow up with Bracco regarding research use of newly available contrast agent
- Dr. Barr to investigate scheduling a CEUS BC session for AIUM's Annual Meeting
- Dr. Perlman to follow up with the group regarding general Profile guidance
- Dr. Wilson to begin preliminary literature search on IBD
- RSNA Staff to provide Dr. Averkiou's project description to CEUS BC members
- RSNA Staff to suggest available Task Force time slots for set rotation once the BC gains momentum

JULY US WebEx / Conference Schedule

WebEx:

- **July 01**: Systems/ Phantom Task Force
- **July 08**: Clinical Task Force
- **July 15:** US SWS BC
- **July 29**: CEUS BC

Conferences/ Meetings:

July 31 – Aug 4: American Association of Physicists in Medicine (AAPM), (Washington, DC)

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.