

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

Friday, May 8, 2020; 11 AM CT

Call Summary

### In attendance

Richard Barr, MD, PhD (Co-Chair)

Todd Erpelding, PhD, MSE (Co-Chair)

Paul Carson, PhD

Sherwin Chan, MD, PhD

J. Brian Fowlkes, PhD

Christian Greis, PhD

George Kapodistrias, PhD

Reinhard Kubale, MD

Zaiyang Long, PhD

Nancy Obuchowski, PhD

Douglas Stone, PhD

### RSNA

Joe Koudelik

Julie Lisiecki

**Moderator:** Dr. Barr

### Approval of 03.13.2020 call summary

- The summary was approved as presented

### Manuscript Updates

- Dr. Averkiou has submitted the manuscript to *Investigative Radiology* for its special issue on contrast media
  - Dr. Averkiou is working on minor revisions requested by the editor
  - Dr. Averkiou was thanked for his work and asked to distribute the paper to BC members when available
  - This paper may help to guide claim development for the Profile
- Dr. Barr also mentioned another paper that has been accepted to the Society of Radiologists in Ultrasound (SRU) journal with sections written by Drs. McCarville and Wilson on using contrast and monitoring tumors
  - This paper will come out as a journal supplement and may include guidance on what is appropriate or not for off-label contrast use, including guidelines for quantification

### Next Goal - the QIBA Profile (Dr. Barr)

- On the last call, Mr. O'Donnell, QIBA Process Committee Chair, introduced QIBA Profile writing process and resources made available to BC members
- The BC intends to focus on liver metastases first
  - Other applications may be considered in future iterations of the Profile
- To assist the collaboration process, RSNA Staff has created a [Google form](#) for all interested BC members to sign up to co/author certain sections of the Profile
- Dr. Barr asked that everyone start thinking about the claims before the next call, as they will inform the rest of the Profile
  - Volunteers are needed to complete the literature search
- A discussion of studies to validate the claims raised the possibility of using an ACRIN MR protocol that tackles similar concerns, which would save financial resources and time in applying for grants
  - Dr. Barr to follow up with Dr. Tuthill regarding available protocols
- Use of the [QIBA DCE-MRI Profile](#) was also suggested as a starting point, with a comparison of claims
  - The QIBA CEUS BC Co-Chairs to get in touch with Drs. [Chung](#) and [Laue](#), Co-Chairs of the DCE-MRI BC
- Some ACRIN studies exist for MR, where funding could also be applied to ultrasound studies
  - Dr. Barr has spoken to ACRIN leadership and they seem receptive to this idea
  - Dr. Barr intends to work through his institution's IRB, but suggested that possibly multiple sites could be involved, and all of them could contribute ultrasound data to the ACRIN database
- More general claims that are based on the technique usable in different trials and on different body parts may be helpful for QIBA conformance validation
- Goal is to finish the draft Profile in 6+ months; motivation to clinical members to push development is the possibility to implement the Profile in a clinical trial soon after

### Other claim ideas discussed:

- Study of pig livers with bilateral flow
  - Will accuracy be the same as with dual flow?
  - Phantoms only have a single flow
- Vendor reproducibility and better accuracy for in vivo circumstances
  - Use of phantom data to determine targets and within subject variation for comparison
- Use of a half-vial of contrast for different batches with lower dose

- Too many studies have issues due to over-saturation, making the cortex and medulla indistinguishable
- Smaller doses could help to alleviate this problem
- Sensitivity of different vendors may require vendor-specific parameters, perhaps in a table for reference
- Amplitude standardization issue may remain an “open issue” for future work
- The DCE-MRI Profile offers a targeted therapeutic response
  - Perhaps the CEUS Profile will offer a similar therapeutic response for liver lesions
- Tumor response may be the easiest in terms of applying for funding
  - It would likely be more difficult to get funding for IBD, though prostate cancer was also discussed due to the availability of MR data
  - US has 2D data, whereas MR has 3D data, which limits CEUS to looking at abnormal perfusion
- Reproducibility of the metric in terms of what would be clinically meaningful
- Probing studies may be needed, perhaps using DCE-MRI as a model
- Goal is to standardize vendors re: data output for a comparable, cross-vendor saturation sensitivity and area-under-the-curve determination

**Helpful Resources:**

- Examples of **Profiles** can be found on the QIBA Wiki here: <http://qibawiki.rsna.org/index.php/Profiles>
- Link to the **US Shear Wave Speed Profile** – which recently completed public comment: [http://qibawiki.rsna.org/images/b/b7/QIBA\\_US\\_SWS\\_Profile\\_10.21.19.pdf](http://qibawiki.rsna.org/images/b/b7/QIBA_US_SWS_Profile_10.21.19.pdf)
- **QIBA Profile template:** [http://qibawiki.rsna.org/index.php/QIBA\\_Profile\\_Template](http://qibawiki.rsna.org/index.php/QIBA_Profile_Template)
- **How to Write a QIBA Profile:** [http://qibawiki.rsna.org/index.php/How\\_to\\_Write\\_a\\_Profile](http://qibawiki.rsna.org/index.php/How_to_Write_a_Profile)
- **Claim Guidance:** [http://qibawiki.rsna.org/index.php/Claim\\_Guidance](http://qibawiki.rsna.org/index.php/Claim_Guidance)
- 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

**Contact information for QIBA Process Committee Leaders:**

- Kevin O’Donnell, MSc (Chair): [Kodonnell@MRU.MEDICAL.CANON](mailto:Kodonnell@MRU.MEDICAL.CANON)
- Michael Boss, PhD (Co-Chair): [mboss@acr.org](mailto:mboss@acr.org)

**Action items:**

- All are asked to sign up for drafting Profile sections using the [Google form](#),
- All are asked to consider directions for the claims, to be discussed on the next call – and to forward suggestions to the co-chairs: Drs. [Averkiou](#), [Barr](#), and [Erpelding](#)
- Dr. Barr to follow up with Drs. [Chung](#) and [Laue](#), Co-Chairs of the DCE-MRI BC

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

<b>05/27</b>	US Qtr 2 Coordinating Ctte, Wed., 5/27 @10 am CT
<b>06/05</b>	SWS BC
<b>06/12</b>	CEUS BC
<del><b>07/03</b></del>	<i>RSNA holiday</i>
<b>07/10</b>	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](mailto:QIBA@RSNA.org) if their attendance is not reflected on the call summaries.