



**PULSE-ECHO QUANTITATIVE ULTRASOUND**

**BIOMARKER COMMITTEE**

*Agenda for Friday, March 5, 2021*

*11:00am – 12:00pm*

Attendees: Ivan Miguel Rosado-Mendez (Co-Chair), Anthony Samir (Co-Chair), Michael Wang, (Co-Chair), Stephane Audiere, Cristel Baiu, Jeffrey Bamber, Richard G. Barr, Paul L. Carson, Shigao Chen, Guy Cloutier, Aaron Engel, Todd Erpelding, Raul Esquivel, J. Brian Fowlkes, Jing Gao, Zaegyoo Hah, Timothy Hall, Aiguo Han, Viksit Kumar, Roberto Lavarello, Tian Liu, Jonathan Mamou, Ravi Managuli, Stephen McAleavey, Andy Milkowski, Kibo Nam, Gary Ng, Juvenal Ormachea, Arinc Ozturk, Theodore Pierce, Michelle L. Robbin, Stephen Rosenzweig, Jonathan Rubin, Laurent Sandrin, Timothy Stiles, Michael Thornton, Theresa Tuthill, Xiaohong Wang, Keith Wear, James Zagzebski, Nancy Obuchowski

AIUM Staff: Kelly Phillips

AS: Anthony Samir

IRM: Ivan Rosado-Mendez

MW: Michael Wang

| <b>TOPIC</b> | <b>COMMENTS</b>                                   | <b>ACTION ITEMS</b> |
|--------------|---|---------------------|
| Introduction | Welcome (MW)                                      |                     |
| Update       | Update on financial aspects of phantom study (MW) |                     |

|                 |   |  |
|-----------------|---|--|
| Work Groups     | Work groups progress reports <ul style="list-style-type: none"> <li>• Attenuation WG (VK, AO, RB, GF)</li> <li>• Backscatter WG (AH, RL, TT)</li> <li>• Sound Speed WG (SR, TP)</li> <li>• Phantom WG (TS, DF)</li> </ul> |  |
| Open Discussion | Open Discussion   |  |
| NEXT CALL       | Date: April 2, 2021<br>Time: 11:00am, EST   |  |

MW - Letters have been sent for donation requests

- Proposing a shipping reimbursement process – participating sites will be responsible for paying up front and will be reimbursed by RSNA

AO – Attenuation WG

- Working on a master document that includes research and profile information
- RB – publication will not have as much data as profile; point is to provide guidance to those who may be interested in doing research
- TH – suggests to have a draft of the claims based on phantom measurements based on literature
- MW – separate in vivo studies from phantom
- NO – can make a claim based on bias, based on precision or variance – from literature

SR – Sound Speed WG

- Completed initial draft summary; summary of existing methods and recommendations for phantom study
- Follow up vendor study
- To do: refine draft summary and coordinate with other work groups; formalize initial claims in draft summary; start work on review paper
- MW – envisioning having vendors acquire RF data, then processing it offline?

- SR – a couple vendors who can do direct estimation, others allow for automatically adjusting sound speed based on image quality

#### TT - Backscatter WG

- Recommendation for RF data acquisition procedure for phantom test
- Drafting questions for vendors
- To do: feedback from vendors; continue to work on summary document
- MW – may want to partner with an academic institution to process the data if the commercial vendors do not have a method of computing backscatter; useful to figure out what capabilities are required from the vendors to acquire data in a way that the academic partner would be able to use it for backscatter estimation
- TH – track whether manufacturer supports these measurements on more than one transducer (applies to all biomarkers)

#### TS – Phantom WG

- 3 phantoms will have beads similar to their usual beads of about 50 micron diameter
- One phantom will have  $k_a$  approx. 0.8 at 4.0 MHz – diameter of about 100 microns
- Phantom size – need to decide
  - Cylinder with 10.2 cm outer and 20 cm height (vol 1.5 liters)
  - Cylinder with 15.2 cm outer and 20 cm height (vol 3.0 liters)
- Smaller samples for through transmission testing of speed and attenuation
- Window material
- Discussed need for coupling fluid or gel – especially for curvilinear arrays; could be packaged with a fluid that matches sound speed to avoid refraction at the window
- TH – verify estimating transmission properties for oblique incidence
  - TS – yes
- MW – coupling material a window you put the probe in?
  - TS – separate container of fluid that would be set on top of the phantom – would be created by CIRS and match the sound speed of each particular phantom
- CB – 4-6 weeks for phantom manufacture time

Discussion:

IRM – Currently discussing with David Fetzer how to represent PEQUS work in the joint publication with Liver Fat Quantification Task Force; you will receive more updates regarding the goal of this publication