



**PULSE-ECHO QUANTITATIVE ULTRASOUND
BIOMARKER COMMITTEE**

Agenda for Friday, October 1, 2021

11:00am – 12:00pm

Attendees: Anthony Samir (Co-Chair), Michael Wang, (Co-Chair), Stephane Audiere, Cristel Baiu, Beth Carini, Paul L. Carson, Yuling Chen, Aaron Engel, Raul Esquivel, David Fetzer, Jing Gao, Joel Gay, Timothy Hall, Viksit Kumar, Roberto Lavarello, Tian Liu, Kibo Nam, Arinc Ozturk, Theodore Pierce, Michelle L. Robbin, Stephen Rosenzweig, Jonathan Rubin, Paul Sidhu, Timothy Stiles, Michael Thornton, Theresa Tuthill, Keith Wear, Nancy Obuchowski, Hayley Whitson, Mohammadreza Kari

AIUM Staff: Kelly Phillips

TOPIC	COMMENTS	ACTION ITEMS
Introduction	Welcome (5 min)	
Donations	Update on donations (MW, 3 min)	
Paris Meeting	Feedback from Paris NASH meeting (AS, 5 min)	
Position Paper	Status of position paper (DF, 2 min)	

Vendor Results	Discussion on disclosing specific vendor results in publications (10 min)	
Work Groups	<p>Work Group Progress Reports</p> <ul style="list-style-type: none"> a. Attenuation (8 min) <ul style="list-style-type: none"> • Measurement protocol • Way to report attenuation (dB/cm @ center frequency, dB/cm-MHz) b. Backscatter (8 min) <ul style="list-style-type: none"> • Measurement protocol • Summary paper c. Sound Speed (8 min) <ul style="list-style-type: none"> • Measurement protocol • Summary paper d. Phantom (8 min) <ul style="list-style-type: none"> • Report on prototype characterization • Phantom specs paper 	<ul style="list-style-type: none"> - Backscatter: Theresa to set up FU meeting with Ivan - Phantom: Tim and David put together a list of comments/questions for leadership; waiting on preliminary results; put together a table with dates etc
Conclusion	Conclusion (3 min)	
NEXT CALL	Date: November 5, 2021 Time: 11:00am, EST	

MW – Donations

- We have received donations from vendors
 - Will follow up with the one vendor that has not responded

AS – Paris NASH meeting

- Well attended, interest in PEQUS was strong, thank you to biomarker committees who provided slides
 - QIBA information was well received, questions pertained to expected performance of the biomarkers and what we hoped to see with integration of the biomarkers
- Slides will be made available in Basecamp

DF – Position paper

- Feedback from co-authors, consolidating several versions

AS – Vendor results in publications

- General arrangement with QIBA that specific results attributed to specific devices don't get attributed to those devices in the publications; reason is to create a safe space for vendor partners to participate without the concern that they may get into "horse races" with other vendor partners that they hadn't agreed to or set up – unfair or not representative of a system in the way a vendor partner may wish to represent it; on the opposite side – people want to see attributions to individual systems and have run into issues in which journal editors have declined to publish papers without that kind of attribution
- MW – anonymization - any journals have policies around this?
 - JR – published in Radiology with anonymized vendors
 - TH – encourage companies to participate in the studies with systems that are not yet commercially available, may not be what they would want to market as their final product but would still like their involvement; Radiology journal editor operates independently and is not comfortable influencing those decisions; reasonable for QIBA leadership to submit a cover letter explaining the policy

VK – Attenuation WG

- Updates
 - Discussion on best method to report attenuation (reporting value at a given frequency or averaged over a bandwidth)
 - Recommendation to look at IEC documents on how specific attenuation is defined
- **Action Items**
 - **Understand how IEC suggests reporting attenuation**
 - **Explore sensitivity of the different ways to report attenuation**

TT – Backscatter WG

- Summary document
 - Gaps identified and are filled in
- Manuscript
 - Have a first draft – Keith Wear taking the lead
 - Includes:
 - Discussion on the basic science of backscatter
 - The reference phantom method for measuring backscatter
 - Methods for compensation for attenuation
 - Literature survey of backscatter coefficient values for normal and fatty liver
 - Discussion of repeatability and reproducibility and potential sources of variability
 - Next, we need to identify and fill gaps and then format the document for submission to a journal
- Pairing academic cites with vendor
 - Still need to determine which sites have ongoing research agreement to use RF that vendor wants tested
 - Would like help from leadership – will set up a meeting with Ivan
- Attenuation compensation
 - Anil Chauhan analyzing (fat/muscle annotation) from images provided by Dr. Barr

SR – Sound Speed WG

- Manuscript status
 - Outline completed and sections assigned to group members
 - 8/12 sections completed
 - Aiming to complete initial draft and 1st round of edits by next SoS work group meeting
- Measurement protocol/spreadsheet
 - Current vendors
 - E-scopics – ES1-Convex ES1
 - Hologic Supersonic Imagine – MACH-C6-1X
 - Mindray North America
 - RE7, Z.One.Pro, ZS3
 - C6-1 (likely omit linear probes and C6-2, C9-3, C9-3sp, C8-3 3D/4D)

- ROI Size
 - Curvilinear
 - 10 degrees
 - 4cm height
 - Use whole image zoom for Mindray (will not test with and without zoom)
 - Parameters
 - Fix temperature of phantom and confirm with thermometer (target = 21 C)
 - Fix ROI size
 - Vary depth – 4.5 cm, 6.5 cm, 8.5 cm (changed from 4, 6, 8 to accommodate hologic device)
 - 10 measurements per depth (30 measurements/phantom)
 - 4 phantoms (120 measurements/operator)
 - 3 operators
 - TP – proposing to change the depth we measure to accommodate all devices; narrowing down what to test for Mindray
- TS – Phantom WG
- Updates and Continuing work
 - Ivan is working on measurements of wall materials to determine wall reflectivity
 - Tim is measuring transmission coefficient of several acoustic window membranes
 - BSC from prototype samples with bead size and density equal to the proposed values
 - BSC results from prototype hockey puck samples from Sun Nuclear look good so far
 - Work on Phantom Design Manuscript
 - Are we ready to order phantoms?
 - Possible concerns:
 - Reflection from wall materials causing clutter and affecting values of parameters
 - Physican dimensions of phantoms; large enough to accommodate abdominal transducers
 - Reference phantom with BSC that is 100 times smaller than one of the test phantoms
 - DF – we discussed attenuating material on the inside of the casing which would increase cost and complexity of manufacturing, as well as a bigger form factor with a larger acoustic window and greater depth – more fragile and liable to break

- Action Items –
 - DF – putting together a list of comments and questions to send to leadership to sign off; waiting for final results from Tim H and Ivan regarding their testing of the preliminary phantom material; then ready for manufacturing
 - AS – put this into a table including presumptive dates so the co-chairs and select a proposed go-live date for the round robin study

AS – Round Robin Study

- Will have a set of phantoms which will be made available to multiple sites, scans will be done in a protocol compliant way
- At the point of the phantom study:
 - Appropriate devices will need to be at the appropriate sites
 - The methods by which the biomarkers will be derived will need to be standardized by the work groups
 - Acquisition methods - will have instructions as to how to go through the protocol in order to minimize operator related variability concerns