

QIBA Ultrasound Shear Wave Speed (SWS) Biomarker Committee (BC) Call

Friday, May 3, 2019; 11 AM CT

Call Summary

In attendance

Andy Milkowski, MS (Co-Chair)

Tim Hall, PhD (Co-Chair)

Jun Chen, PhD

Todd Erpelding, PhD, MSE

Al Gee

Reinhard Kubale, MD

Stephen McAleavey, PhD

Nancy Obuchowski, PhD

Arinc Ozturk, MD

Leah Schafer, MD

Michael Wang, PhD, MASc

Keith Wear, PhD

RSNA

Joe Koudelik

Julie Lisiecki

Moderator: Mr. Milkowski

Approval of 02.01.2019 call summary

- The summary was approved as written

AIUM 2019 Meeting Update: (Mr. Milkowski)

- Consensus has been established regarding future direction for the SWS BC
- The Profile has been through an internal review and notes have been made regarding what has been addressed and what issues remain outstanding
 - There is more familiarity with acquisition protocols from the phantom studies
 - Additional focus on patients will be added in version 2.0 of the Profile
- A major clinical concern is that confidence interval measurements are challenging at elevated shear wave speeds
 - The difference between vendors was relatively small
 - Challenges exist with large patients and/or stiff livers; these can increase system variability
- Confidence in new system software from manufacturers as new features get added is important to consider
 - The trustworthiness of SWS values can change with software changes or updates
 - Are prior high-value cutoffs still relevant?
 - Annual service contracts using physical phantom calibration could help to address these issues

Other topics briefly discussed:

- Education
- Elevated output
- Pharma: MRE and Fibroscan
- Advocacy committees for shear wave like the International Contrast Ultrasound Society, ([ICUS](#))

Challenging Patients

- SWS has decided to focus on the confidence of measurements for challenging patients and may need to develop and test stiffer visco-elastic phantoms for this purpose
- At the AIUM meeting, Dr. Rouze showed where CIRS phantoms compared (slope velocities) in phase
 - Stiffer phantoms present a bigger challenge among manufacturer systems to get the same results
 - There is an even larger challenge with more viscous phantoms
 - Increased slope and phase velocities can affect results
 - Patients categorized as “challenging” may be obese or may pose different challenges
 - Need to define how a “challenging” patient is being interpreted; clinician input needed to define
 - Improving confidence in measurements overall for these patients would be very helpful
 - Dr. Schafer noted that this category of patients is her biggest concern
 - The group hopes to improve confidence in shear wave imaging by developing a stiffer visco-elastic phantom, which would document different patient measurements
 - Phantoms will need a fat layer with some structure
 - There will be a period of investigation and testing of prototype phantom designs

- Dr. Ozturk tried to find a solution to this problem by creating a home-made phantom using pork belly fat to test for image distortion
 - While this solution was helpful, it was not able to standardize for thickness or to provide enough details for the region of interest
 - It did not work for elastography and it has not been determined how to quantify the failure regarding poor measurements
- A dual-layer phantom with a technical approach to handling the clinical problem can be the way forward
 - BC members will continue building upon this idea on future calls and will line up some proposed phantom manufacturers to aid with challenging patients

Profile request:

- Industry-specific contact email addresses for public comment should be provided to RSNA staff:
jlisiecki@rsna.org

Profile Approval Process Next Steps:

- See voting and balloting process links <http://qibawiki.rsna.org/index.php/Process>
- Voting to release the Profile for public comment will be done electronically

QIBA US Schedule:

05/10	CEUS BC
06/07	SWS BC