QIBA Ultrasound Shear Wave Speed (SWS) Combined Call:
System Dependencies *and* Phantom-System Measurement Testing Subcommittees
Friday, June 20, 2014; 11 AM CT
Call Summary

In attendance

Mark Palmeri, MD, PhD (Co-Chair)			**RSNA**
Keith Wear, PhD (Co-Chair)	Gilles Guennette, RDMS, RDCS, RVT	Nicolas Rognin, MSc, PhD	Julie Lisiecki
Paul Carson, PhD	Ted Lynch, PhD	Vijay Shamdasani, PhD	Madeleine McCoy
Jun Chen, PhD	Michael MacDonald, PhD	Daniel Sullivan, MD	
Shigao Chen, PhD	Stephen McAleavey, PhD	Matthew Urban, PhD	
David Cosgrove, MD	Yasuo Miyajima, MS	Michael Wang, PhD, MASC	
Brian Garra, MD	Kathy Nightingale, PhD	Hua Xie, PhD	

Moderator: Mark Palmeri, MD, PhD

Notes:

- Drs. Palmeri, Urban, and McAleavey gave an overview of presentations, from the recent Ultrasonic Imaging and Tissue Characterization Symposium (UITC) in Arlington, VA, June 9-11, 2014, with conclusions, as follows:

- **Modulation of acoustic-radiation-force –induced shear-wave spectral content by spatial beam-widths and excitation duration** (Dr. Palmeri)

  Conclusions:
  - ARF excitation spatial distribution and duration affect (Shear Wave) SW spectral content
  - More-focused and shorter excitations lead to:
    - SW with higher spectral content
    - Greater spectral difference as a function of shear modulus
  - The excitation elevation extent can affect lateral SW spectral content

  Future Directions:
  - Application to viscoelastic media
    - Impact on group velocity estimates
    - Bias in estimating viscous parameters
  - Sensitivity to spectral differences with speckle-based displacement estimation
  - Extend analysis to realistic excitations in collaboration with Mayo Clinic

- **Viscoelastic characterization of renal transplants** (Dr. Urban)

  Conclusions:
  - Measurements of shear wave group velocity were positively correlated with serum creatinine levels.
  - Measurements of shear wave group velocity in transplanted kidneys increased with increased Banff scores.
  - Measurement of renal viscoelasticity in renal transplants is feasible, but needs to be studied in more patients to evaluate its prognostic and diagnostic value.

- **Comparison of single- and multiple-track location shear-wave speed estimates** (Dr. McAleavey)

  Conclusions:
  - Results suggest that STL methods are preferable to MTL
    - Decreased shear wave velocity variance for a given spatial resolution
    - Decreased sensitivity to bright scatterers
  - Error in STL estimates possible due to distortion of push beams or shear waves, but these appear to be significantly smaller effects for typical parameter values
  - Application of STL poised to allow higher resolution shear wave elastography imaging

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Remaining June Call:

- Friday, **June 27, 2014**: Clinical SC – Dr. Samir

July Call Schedule - *Fridays at 11 am CT*:

- Friday, **July 11, 2014**: Systems/ Phantom SC – Dr. Wear
- Friday, **July 18, 2014**: US SWS Technical Committee Call – Dr. Hall
- Friday, **July 25, 2014**: Clinical SC – Dr. Samir

Conferences for Ultrasound on QIBA Wiki

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