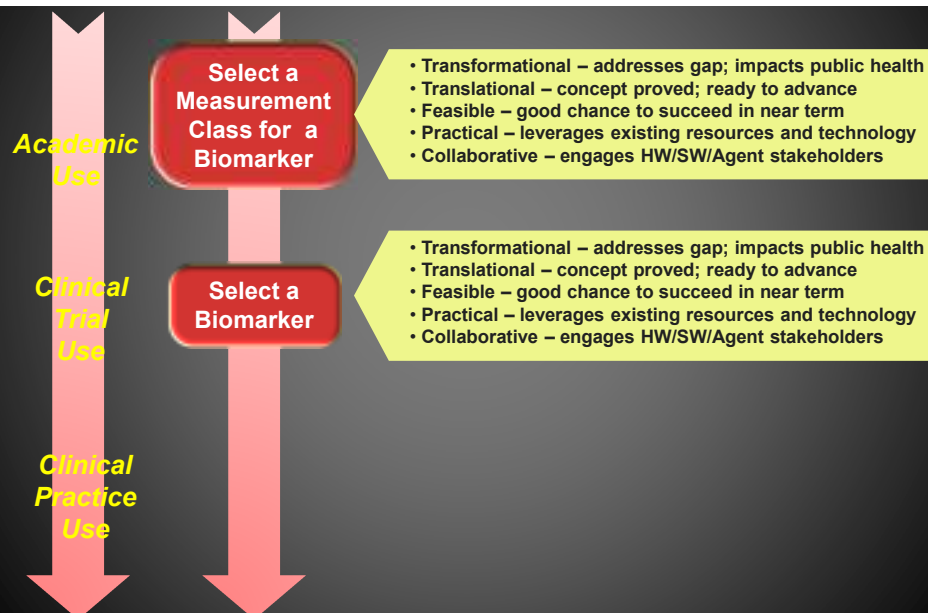




# QIBA Ultrasound Quantitative Biomarker Planning Meeting

March 29, 2012  
Phoenix, Arizona

## This Meeting in the QIBA Process





## Ultrasound Measurement Mode or Class

- Elastography – Related Measures
- Measures with Contrast Agents
- Volume, Other B Mode Morphometrics
- Volume Flow and Other Doppler Measures
- Measures from ultrasound spectra
- **Not the Only effort in quantification**



## Elastography – Related Measures

- *Timothy J. Hall, PhD*,  
University of Wisconsin-Madison
- *David Cosgrove, MD*  
Imperial College, School of Medicine, London

Strain Imaging, lots of artifacts, quantification weak  
Elasticity computation, difficult

Shear wave speed and elasticity-accurate



## Measures with Contrast Agents

- **Paul Dayton, PhD**  
*University of Virginia*
- **Kenneth Hoyt, PhD**  
*University of Alabama Birmingham*
- **Nicolas Rognin, PhD**  
*Toshiba Med Research Inst, USA*

**Refill rate imaging becoming popular.  
Bioeffects a possible consideration.**



## B Mode Morphometrics

- **Brian S. Garra, MD**  
*WDC VA Medical Center /FDA*
- **Thomas R. Nelson, PhD**  
*Univ. of California San Diego*

**Sophisticated developments in QIBA CT  
Volumetry could probably advance US  
measurements**



## Volume Flow and Other Doppler Measures

- *Jonathan Rubin, MD, PhD*  
University of Michigan
- **Michelle L. Robbin, MD, MS**  
University of Alabama Birmingham

Long used and studied, 3D allows substantial improvements

D. Sullivan



## Examples of Imaging Biomarkers

Biomarker	Test	Metric
COPD: Air-tissue ratio	CT scan densitometry	MLD (mean lung density)
Cancer: Tumor burden	CT scan volumetry; MR scan volumetry	Volume
Cancer: Glucose avidity	FDG-PET scan	SUV (standardized uptake value)
Cancer: Vascular permeability	DCE-MRI scan	$K_{trans}$ ; IAUC
Brain surgery risk: Proximity to eloquent cortex	fMRI scan brain-mapping	Center and magnitude of cortical activation



## **Approach to not depressing other quantitative imaging research**

- **Advertise other biomarkers worthy of development and encourage other groups to start own QIBA effort.**



## **Be Thinking About**

- **Initial vote right after these talks**
- **Breakout Group Meetings to Specify Measurements and Biomarker to Be Voted On**