QIBA Overview

The Quantitative Imaging Biomarkers Alliance (*QIBA*) was organized by RSNA in 2007 to unite researchers, healthcare professionals, and industry stakeholders in the advancement of quantitative imaging and the use of biomarkers in clinical trials and practice.

Definition
Quantitative imaging is the acquisition, extraction and characterization of relevant quantifiable features from medical images for use in research and patient care. Standardizing the use of imaging biomarkers in clinical trials will reduce the variance inherent across different hardware and software platforms. RSNA views this work as a step toward an ultimate goal of enhancing the use of quantitative imaging methods in clinical practice.

QIBA is an important part of RSNA's commitment to transforming radiology from a *qualitative* to a more *quantitative* science and to the improved patient care resulting from accelerated development and dissemination of new pharmacologic, biologic and interventional diagnosis and treatment approaches.

QIBA Mission
Improve the value and practicality of quantitative imaging biomarkers by reducing variability across devices, patients and time.

The work of QIBA has advanced through the generous efforts of volunteer members from academia, the medical device industry, the pharmaceutical and other business sectors, and government. There are 13 biomarker committees open to all interested persons. These Committees have specific tasks and deliverables for their respective modalities and disease-based approach:

CT Volumetry	**FDG-PET/CT**
Lung Density	**PET-Amyloid**
Functional magnetic resonance imaging (fMRI)	**Single-photon emission computed tomography (SPECT**)
Magnetic resonance elastography (MRE)	**Ultrasound Shear Wave Speed (US-SWS)**
Musculoskeletal (MSK)	**Ultrasound Volume Blood Flow (US-VBF)** [AIUM]
Perfusion, Diffusion and Flow MRI (PDF-MRI)	**Contrast Enhanced Ultrasound (CEUS)**
Proton Density Fat Fraction (PDFF)	

The QIBA Approach
The work of the QIBA Committees follows a defined, coordinated process to develop solutions and promote their adoption.

I. *Identify Sources of Error and Variation in Quantitative Results from Imaging Methods:* Stakeholders work to identify problems leading to error or variability in quantitative results from imaging methods.

II. *Specify Potential Solutions:* Stakeholders identify potential strategies and infrastructure for error mitigation and collaborate on development of hardware, software, and protocol solutions, documenting them in the form of QIBA Profiles.

III. *Test Solutions:* Vendors and researchers implement QIBA solutions to assess their feasibility and efficacy.

IV. *Promulgate Solutions:* Validated solutions are disseminated and implemented through vendor adoption, research integration and clinical education.

QIBA Resources
QIBA meeting summaries, key criteria for identifying biomarker opportunities, the *QIBA Newsletter* and other documents are available on the QIBA website RSNA.ORG/QIBA and wiki http://qibawiki.rsna.org/

QIBA Committees

QIBA Governance Structure

QIBA Chair: Edward F. Jackson, PhD   (University of Wisconsin, School of Medicine & Public Health)
QIBA Vice Chair: Alex Guimaraes, MD, PhD   (Oregon Health & Science University)

Scientific Liaison: CT: Andrew J. Buckler, MS   (Elucid Bioimaging, Inc.)

Scientific Liaison: MR: Thomas L. Chenevert, PhD   (University of Michigan Health System)

Scientific Liaison: NM: Paul E. Kinahan, PhD   (University of Washington)

Scientific Liaison: US: Paul L. Carson, PhD   (University of Michigan Health System)

Process Committee

Process Committee
Chair: Kevin O'Donnell, MASc   (Toshiba Medical Research Institute USA, Inc.)
Vice Chair: Daniel Sullivan, MD   (Duke University Medical Center)

Coordinating Committees

Computed Tomography (CT) Coordinating Committee
Co-Chairs: Rudresh Jarecha, MBBS, DNB, DMRE   (PAREXEL International)
                    Lawrence Schwartz, MD   (New York Presbyterian Hospital / Columbia University)
Vice Chair: David Lynch, MD   (National Jewish Health)

Magnetic Resonance Imaging (MR) Coordinating Committee
Co-Chairs: Mark Rosen, MD, PhD   (University of Pennsylvania)
                    Gudrun Zahlmann, PhD   (F. Hoffmann-La Roche Ltd.)
Vice Chair: Cathy Elsinger, PhD   (NordicNeuroLab, Inc.)

Nuclear Medicine (NM) Coordinating Committee
Co-Chairs: Richard Wahl, MD   (Mallinckrodt Institute, Washington University)
                    Eric Perlman, MD   (Perlman Advisory Group, LLC)
Vice Chair: P. David Mozley, MD   (Weill Cornell Medical College)

Ultrasound (US) Coordinating Committee
Chair: Tim Hall, PhD   (University of Wisconsin, School of Medicine & Public Health)
Vice Chair: Brian Garra, MD   (Washington DC VA Medical Center / FDA)

Biomarker Committees (by imaging modality)

CT Volumetry
Co-Chairs:
Gregory V. Goldmacher, MD, PhD , MBA   (Merck)
Ehsan Samei, PhD   (Duke University Medical Center)
Jenifer Siegelman, MD, MPH   (Takeda Pharmaceuticals)

Lung Density
Chair:
Sean Fain, PhD   (University of Wisconsin, School of Medicine & Public Health)
Matthew Fuld, PhD   (Siemens Medical Solutions USA, Inc.)
David Lynch, MD   (National Jewish Health)
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fMRI
Co-Chairs:
Edgar DeYoe, PhD   (Medical College of Wisconsin)
Jay Pillai, MD   (Johns Hopkins University)
James Reuss, PhD   (Prism Clinical Imaging, Inc.)

MRE
Co-Chairs:
Patricia Cole, PhD, MD   (Cole Imaging and Biomarker Consulting, LLC)
Richard Ehman, MD   (Mayo Clinic)

MSK
Co-Chairs
Thomas Link, MD, PhD   (University of California, San Francisco)
Xiaojuan Li, PhD   (Cleveland Clinic Foundation)

Perfusion, Diffusion and Flow - MRI
Co-Chairs:
Michael Boss, PhD   (NIST)
John Kirsch, PhD   (Massachusetts General Hospital)
Daniel Barboriak, MD   (Duke University)

Proton Density Fat Fraction
Co-Chairs:
Scott Reeder, MD, PhD   (University of Wisconsin, School of Medicine & Public Health)
Takeshi Yokoo, MD, PhD   (University of Texas Southwestern Medical Center)

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FDG-PET
Co-Chairs:
Rathan Subramaniam, MD, PhD, MPH   (University of Texas, Southwestern Medical Center)
John J. Sunderland, PhD   (University of Iowa)
Scott Wollenweber, PhD   (GE Healthcare)

PET-Amyloid
Co-chairs:
Satoshi Minoshima, MD, PhD   (University of Utah)
Anne Smith, PhD   (Siemens Medical Solutions USA, Inc.)
Dawn C. Matthews, MS, MBA   (ADM Diagnostics, LLC)

SPECT
Co-Chairs:
Yuni Dewaraja, PhD   (University of Michigan Health System)
P. David Mozley, MD   (Weill Cornell Medical College)
John Seibyl, MD   (Yale University / Institute for Neurodegenerative Disorders)

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Contrast Enhanced Ultrasound (CEUS)
Co-Chairs:
Michalakis (Mike) A. Averkiou, PhD   (University of Washington, Seattle)
Richard G. Barr, MD, PhD   (Northeastern Ohio Medical University)

Ultrasound Shear Wave Speed
Co-Chairs:
Brian Garra, MD   (Washington DC VA Medical Center / FDA)
Timothy J. Hall, PhD   (University of Wisconsin, School of Medicine & Public Health)
Andy Milkowski, MS   (Siemens Medical Solutions USA, Inc.)

Ultrasound Volume Blood Flow [Supported by AIUM]
Co-Chairs:
J. Brian Fowlkes, PhD   (University of Michigan Health System)
Oliver Kripfgans, PhD   (University of Michigan Health System)

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