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 18 biomarker committees open to all interested persons. These Committees have specific tasks and deliverables for their respective modalities and disease-based approach:

CT Small Lung Nodule	**Magnetic Resonance Elastography (MRE)**
CT Volumetry	**Musculoskeletal (MSK)**
Lung Density	**Proton Density Fat Fraction (PDFF)**
Arterial Spin Labeling (ASL) [EIBIR]	**FDG-PET/CT**
DCE-MRI	**PET-Amyloid**
DSC-MRI	**Single-photon emission computed tomography (SPECT)**
DTI+ MRI	**Ultrasound Shear Wave Speed (US-SWS)**
DWI-MRI	**Ultrasound Volume Blood Flow (US-VBF)** [AIUM]
Functional magnetic resonance imaging (fMRI)	**Contrast Enhanced Ultrasound (CEUS)**

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/.

Volunteers for the QIBA Committees are welcome; please contact us at: qiba@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

Chair:	Kevin O'Donnell, MASc	(Canon Medical Research USA)
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	(Independent Consultant)
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
CT Volumetry
Co-Chairs:

Rudresh Jarecha, MBBS, DNB, DMRE	(PAREXEL International)
Ehsan Samei, PhD	(Duke University Medical Center)
Jenifer Siegelman, MD, MPH	(Takeda Pharmaceuticals)

Lung Density
Co-Chairs:

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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MR
Arterial Spin Labeling (ASL) [Supported by EIBIR]
Co-Chairs

Eric Achten, PhD	(University Hospital of Gent, EIBALL)
Xavier Golay, PhD	(University College London)
Matthias Guenther, PhD	(Frauenhofer MEVIS)
Siegfried Trattnig, MD	(Vienna General Hospital / ESR)

Dynamic Contrast-Enhanced MRI
Co-Chairs

Caroline Chung, MD	(University of Texas, MD Anderson Cancer Center)
Hendrik Laue, PhD	(Fraunhofer MEVIS)

Dynamic Susceptibility Contrast MRI
Co-Chairs

Bradley Erickson, MD, PhD	(Mayo Clinic)
Ona Wu, PhD	(Massachusetts General Hospital)

Diffusion Tensor Imaging +
Co-Chairs

Walter Schneider, PhD	(University of Pittsburgh)
Christopher Whitlow, MD, PhD	(Wake Forest University)

Diffusion-Weighted Imaging
Co-Chairs

Michael Boss, PhD	(NIST)
Thomas Chenevert, PhD	(University of Michigan Health System)

fMRI
Co-Chairs:

Feroze Mohamed, PhD	(Thomas Jefferson University Hospital)
Jay Pillai, MD	(Johns Hopkins University)
David Soltysik, PhD	(U.S. Food and Drug Administration (FDA))

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)

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)

NM
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)

US
Contrast Enhanced Ultrasound (CEUS)
Co-Chairs:

Michalakis (Mike) A. Averkiou, PhD	(University of Washington, Seattle)
Richard G. Barr, MD, PhD	(Northeastern Ohio Medical University)
Todd Erpelding, PhD, MSE	(Canon Medical Systems USA)

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)
James Jago, PhD	(Philips Healthcare)
Oliver Kripfgans, PhD	(University of Michigan Health System)

QIDW Oversight Committee

Chair:

Bradley J. Erickson, MD, PhD   (Mayo Clinic)

Statistician/Metrology

Nancy Obuchowski, PhD   (Cleveland Clinic)

Updated 21-May-2018