The New Emerging Science of Quantitative Imaging Biomarkers

**Terminology and Definitions for Scientific Studies and for Regulatory Submissions**


The QIBA Terminology Working Group is creating a document that will present the nomenclature associated with measuring quantitative imaging biomarkers (QIBs) and changes to DIM. To do this concisely and clearly, we will ultimately serve as a reference for imaging vendors, QIBA professionals, and QIBA professionals.

**ABSTRACT.** The development and successful marketing of quantitative imaging biomarkers (QIBs) has been hampered by inconsistent and often unclear terminology related to these markers. The Radiologic Society of North America, the American College of Radiology, and the International Society for Magnetic Resonance in Medicine have created working groups to improve terminology. This document describes the goals of the working group and presents a list of commonly used terms, definitions, and synonyms. A companion document presents a list of terms and definitions for regulatory purposes. This document provides a single reference for the development of QIBs by using digital imaging that produces digital information. This paper proposes definitions of research studies and QIBs that we have been working with to define definitions as well as examples of the concepts involved in this emerging field. We also provide recommendations concerning additional training necessary to define QIBs, and understanding for appropriate technological constituents. These include that the term "quantitative imaging biomarker" does not imply an increase in the size of the research team and that the term "quantitative imaging biomarker" has a larger range of meaning than "measure" or "image analysis." The working group's recommendations include standard terminology and definitions used throughout the imaging community, including the terminology and definitions used by the International Society for Magnetic Resonance in Medicine, the Radiologic Society of North America, and the American College of Radiology, and the International Society for Magnetic Resonance in Medicine. We also present definitions of the terms "quantitative imaging biomarker" and "quantitative imaging biomarker algorithm," as well as definitions of the terms "quantitative imaging biomarker algorithm," "quantitative imaging biomarker algorithm," and "quantitative imaging biomarker algorithm." We also present definitions of the terms "quantitative imaging biomarker algorithm," "quantitative imaging biomarker algorithm," and "quantitative imaging biomarker algorithm." We also present definitions of the terms "quantitative imaging biomarker algorithm," "quantitative imaging biomarker algorithm," and "quantitative imaging biomarker algorithm." We also present definitions of the terms "quantitative imaging biomarker algorithm," "quantitative imaging biomarker algorithm," and "quantitative imaging biomarker algorithm."