

QIBA Diffusion-Weighted Imaging (DWI) MR Biomarker Committee (BC) Meeting

Tuesday, June 27, 2023, at 1 pm (CT)

Meeting Summary

Participants

<i>Michael Boss, PhD (Co-chair)</i>	Thomas Chenevert, PhD	Kevin Miller, MS	RSNA Joe Koudelik
<i>Dariya Malyarenko, PhD (Co-chair)</i>	Nandita deSouza, MD	Savannah Partridge, PhD	Susan Stanfa
<i>Daniel Margolis, MD (Co-chair)</i>	Moti Freiman, PhD	Rebecca Rakow-Penner, MD, PhD	
Hongyu An, DSc	Mo Kadbi, PhD	Callie Weiant, JD	
Rajpaul Attariwala, MD, PhD	Erin Kelly, PhD	Jessica M. Winfield, PhD	

Discussion Topics

- First CPT code issued for MRI QI technique
- Update on literature review for scientific report (formerly referred to as the white paper)
- Presentation series: Canon Medical Systems USA, Inc.

Action Items:

- MRI CPT codes have been anatomically based with no differentiation in codes for submodalities e.g., DWI in abdomen, DCE in liver, etc.
 - CPT code has been issued for MRE
 - ACR acts as an interface between the radiology community and the CPT code system
 - Dr. Boss to establish QIBA / ACR dialogue to promote quantitative diffusion through application for CPT codes
- During the literature review for the scientific report, it was concluded that breast and brain lesion literature is consistent with DWI Profile Claims
- **“Artificial Intelligence in DWI: Denoising and Super-Resolution for MR”** (Erin Kelly, PhD, Canon Medical Systems, USA, Inc.)
 - Focused on improvement of analysis and interpretation of the collected information to better care for patients; the main part of optimizing MRI is to find the best balance between SNR and resolution
 - A group of U.S. Canon scientists recently collaborated with CaliberMRI to perform conformance testing using the ice bath instructions outlined in the DWI Profile
 - Traditional diffusion images were reconstructed with Advanced intelligent Clear-IQ Engine (AiCE), and the ADC values were re-evaluated in comparison to the NIST phantoms
 - The agreement between the AiCE and no AiCE diffusion ADC calculations and between the measured ADC and the NIST ADC value was excellent
- Ueda et al. [Deep Learning Reconstruction of Diffusion-weighted MRI Improves Image Quality for Prostatic Imaging](#). *Radiology* 2022; 000:1–9
 - Deep learning reconstruction improves the image quality of diffusion-weighted MRI scans of prostate cancer with no impact on apparent diffusion coefficient quantitation with a 3.0-T MRI system
- As Canon expands the clinical indications for Precise IQ Engine (PIQE) and it receives clearance, additional clinical studies can be done using the DWI Profile

Next Steps:

- Meeting with DWI BC Co-chairs and Drs. deSouza and Obuchowski to be scheduled to review prostate literature and determine whether there are sufficient data to support Profile Claim adjustment
- Drs. Attariwala, Margolis, Partridge and Winfield to send vendor contact information to DWI BC Co-chairs in efforts to schedule additional vendor presentations for upcoming DWI BC meetings
- **Next DWI-MR BC Meeting:** July 25, 2023, at 1 p.m. CT [4th Tuesday of each month]