

QIBA PET Amyloid Biomarker Committee (BC) Call

09 February 2018 at 9:00 AM CT

Call Summary

In attendance:			RSNA
Anne Smith, PhD (Co-Chair)	Rachid Fahmi, MSc, PhD	Nancy Obuchowski, PhD	Joe Koudelik
Dawn Matthews, MS, MBA (Co-Chair)	Adriaan Lammertsma, PhD	John Sunderland, PhD	Julie Lisiecki
Satoshi Minoshima, MD, PhD (Co-Chair)	Martin Lodge, PhD	Jean-Luc Vanderheyden, PhD	
Ronald Boellaard, PhD			

Moderator: Dr. Smith

Addressing Profile Public Comments Update:

- Drs. Smith and Lodge met to discuss and prioritize some of the open physics questions earlier in the week
- A few physics points remain for discussion with the entire BC:
 1. One reviewer wanted to include PET/MR scanners to perform PET Amyloid imaging
 - In the current version of the Profile, it would be difficult to include PET/MR parameters
 - Dr. Boellaard suggested that it may be possible to include PET/MR with some additional requirements; some scanner manufacturers already have PET/MR protocol templates in place
 - Although attenuation correction in the brain is considered under control, some questions remain regarding statistical corrections
 - It will be necessary to review the available literature with Dr. Obuchowski to determine the possible impact of attenuation correction on the claim, with a CT-based attenuation correction
 - It will be necessary to evaluate the scanners in a longitudinal study
 - Consensus reached that PET/CT and PET/MR were not interchangeable for base and follow-up scans; the same techniques must be used for both scans
 - Wash U may have a data set for florbetapir similarities and differences, which may be helpful
 - Another ad hoc PET Physics call will be scheduled with PET/MR physicists to sort out these few remaining questions
 - Dr. Smith to contact Dr. LaForest (Wash U) to join the physics call and provide a list of invitees to RSNA staff
 2. The Profile uses the Hoffman 3-D Brain Phantom for quality control
 - A significant roadblock to the use of this phantom is that there is no specific analysis package available; sites typically use a variety of analysis software which makes cross comparisons difficult
 - There is no publicly available open-source software analysis program to use with the phantom
 - Dr. Boellaard has created his own template for use with the Hoffman phantom; however, he too advocates for a standard analysis package to be identified/ made available for use with this Profile
 - As it may not be possible to develop such a package without adequate lead time, the group agreed to add this as a caveat for a future version of the Profile
- Updated documents will be posted by Ms. Matthews to the QIBA wiki on the BC page for review including:
 1. The public comment Excel spreadsheet including proposed BC resolution responses and comments
 2. A PDF version of the original Profile sent out for public comment which contains line numbers that correspond to the resolution spreadsheet
 3. A Word version of the Profile with tracked changes that no longer matches the line numbers due to edits
 4. Dr. Obuchowski's white paper explaining how the Profile Claims are translated into meaningful statistical numbers, e.g. confidence intervals, etc.

Gap Analysis with ADNI

- Ms. Matthews conducted a gap analysis of the QIBA PET Amyloid BC Profile using the ADNI Amyloid PET Technical Procedure Manual

- This is a two page document that itemizes each aspect of the QIBA Profile compared to the ADNI Protocol
- This [gap analysis report](#) is available on the QIBA wiki
- The gap analysis includes many similarities and covers subject positioning as well as motion correction
- The data acquisition protocol has remained the same between ADNI 2 and ADNI 3, with the exception that floretaben has been added as an amyloid tracer
- There are a few inconsistencies with wording for the time window for re-scans
- The ADNI Protocol is strict regarding image acquisition parameters
- ADNI protocols do not address processing and analysis
- Differences are noted in red font
- [Dr. Obuchowski's Statistical Planning for a Clinical Trial Guidance document](#) and related documents may also be found on the wiki

Proposals Regarding the Claims

- Propose to leave the technical performance claim as the prominent claim, but simplify the way it is written
- The second section that follows the claim is very important
- A separate section will be added to address the impact of blood flow changes
 - Changes in blood flow may appear as false-positive amyloid changes, but upon further kinetic testing, they may not be amyloid-related
 - Changes in blood flow could be drug-related
- These systematic unidirectional blood flow changes may become problematic as a source of bias rather than variability

Alternatives to Consider for Further Discussion:

- Exploratory full dynamic studies
- Dual frame acquisition has been gaining Pharma interest
- Bolus (more difficult to implement consistently)

NM WebEx Schedule

02/16	SPECT BC	02/23	NM Coordinating Ctte	
03/02	FDG-PET BC	03/09	PET Amyloid BC	03/16 SPECT BC