

## QIBA SPECT TC<sup>99m</sup> Biomarker Committee (BC) Call

Tuesday, April 9, 2019, 2 PM (CT)

Call Summary

*Supplemental notes provided by Dr. Miyaoka on page 2*

### In attendance:

Robert Miyaoka, PhD (Co-Chair)

David Miranda

Nancy Obuchowski, PhD

### RSNA Staff

Joe Koudelik

John Dickson, PhD

P. David Mozley, MD

Julie Lisiecki

**Moderator:** Dr. Miyaoka

### Timeline for TC<sup>99m</sup> BC Profile:

- **2Q2019:** Any remaining comments or loose ends to be resolved by the May 2019 BC meeting
  - Goal is to finalize the Profile for public comment release by the QIBA Annual Meeting in June 2019
- **3Q2019:** Start public comment phase
- **4Q2019:** Conformance (feasibility) testing
  - **By November 1, 2019,** aim to have conformance testing complete in order to turn the page by the QIBA Working Meeting at RSNA 2019

### Discussion: Sections Needing Work:

- Line 315
- Table 3.5.2
- Section 3.9.1, line 605
- Section 3.13.1, line 730 – reviewed Dr. Dewaraja's edits
- Section 4.8, line 1030, discuss number of counts and acceptable bias

### Section 3.6 – Section 3.9 – Protocol Design Questions

- Time per frame / image data acquisition:
  - There is a minimum of 2 million counts mentioned for image data acquisition., but 5 million counts are recommended in Section 4.8.
  - Need to confirm lowest, detectable count number
- Image voxel size: Text needs revision to reflect settings on most SPECT/CT cameras
- Section 3.13 – Image Analysis
  - Use of a DRO has been discussed. However, the group concluded this was not feasible for Version 1.0 since one that is fit for purpose has not been developed
  - Instead, the previously validated XCAT phantom was recommended as a viable solution
- Need to review comments provided by Mr. O'Donnell
- Appendix D: Model specific instructions and parameters need to be filled in for the tables
- Appendix E: Conformance Checklists - Decide on actors and separate checklists for each

### Spring [QIBA Newsletter](#) article:

- Dr. Miyaoka invited Dr. Dickson to collaborate with him and Dr. Dewaraja on the article for the May *QIBA Newsletter*
- The topic is "The QIBA SPECT I-123 and TC<sup>99m</sup> Profile efforts."

### Work Assignment Updates for Section Editors:

- claims sans CVs: Drs. David Mozley/Nancy Obuchowski, et al ([mozley@gmail.com](mailto:mozley@gmail.com)) - *complete*
- image acquisition: Dr. Yuni Dewaraja, et al ([yuni@med.umich.edu](mailto:yuni@med.umich.edu)) – *nearly complete*
- image recon: Dr. Eric Frey, et al ([efrey@jhmi.edu](mailto:efrey@jhmi.edu)) - *complete*
- image analysis: Dr. Robert Miyaoka, et al ([rmiyaoka@uw.edu](mailto:rmiyaoka@uw.edu)) – *nearly complete*
- QA: Drs. Denis Bergeron/Brian Zimmerman, et al ([denis.bergeron@nist.gov](mailto:denis.bergeron@nist.gov)) - *complete*

### Next steps

- All are asked to review their respective comments and resolve them prior to the next call
  - Appendix E: Conformance Checklists - Decide on actors and separate checklists for each

**Next call** – 2<sup>nd</sup> Tuesday of May (May 14, 2019 at 2 pm CT)

### *Supplemental Meeting Notes provided by Dr. Miyaoka*

- Edited line 315. Removed “This measure is an estimate of target number, rather than target density,” from the text.
- Discussion regarding entry in Table 3.5.2. Phantom test. Is 8% too high or okay for phantom test?
  - Dr. Miyaoka feels that 8% is on the high side for a phantom test.
  - 8% is appropriate for human imaging, but we should be able to do better, especially for a relatively simple phantom.
  - Question about the 8% value was raised by Dr. Dewaraja in the document she sent out before the meeting.
  - If not 8%, what is a better value? Is there ground work to support a different value? There is groundwork in-patient to support 8%.
  - Conclusion is to stay with 8% until new data or public comments seem to require tightening tolerance.
- Line 510+. Need to reword a little bit. Max voxel size is too big.
- Section 3.13: Accepted what Dr. Dewaraja wrote.
  - However, there was a discussion whether planar sensitivity measurement is adequate.
  - Manufacturers are going this way, especially for Tc-99m.
  - However, using a right circular cylinder (phantom) may test lead to a more accurate calibration factor.
  - Group concluded planar is okay for now; however, something that we might want to discuss off-line for Version 2.0.
- Line 750+. Need to revise text regarding DRO.
  - We do not have time nor funds to develop DRO’s for this profile.
  - Should just go with the XCAT phantom for the time being.
  - Need text to be consistent with the recommendation of using the XCAT phantom.
  - Dr. Miyoka agreed to make the revisions, AND ACCEPT THE CHANGES.
- Line 820+. Need to revise text. This is text from the I-123 profile.
- Lines 923+. Need to discuss off-line.
  - Is CV of 15% the appropriate value?
  - Need to be consistent on abbreviation COV or CV.
  - We decided today to go with CV. Need to make necessary changes throughout document. Dr. Mozley will edit.
- Section 4.7. Had discussion about counts specified in text.
  - 135 kcts per view is a lot more than 2 million in full projection data set.
- Also, in section 4.8, it is recommended to collect 5 million counts per scan in repeatability study.
  - These numbers are much higher than the minimum of 2 million counts listed in section 3.9.
  - Do they need to be consistent or is it okay that there are different count levels recommended?
  - Again, something that we can consider off-line.