

QIBA Volumetric CT Group 3A Update

Thursday, March 3, 2011; 11 AM CST

Call Summary

In attendance

Maria Athelougou, PhD (Chair)

Hubert Beaumont

Andrew Buckler, MS

Dirk Colditz, PhD

Charles Fenimore, PhD

David Gustafson, PhD

Guillaume Orioux

Nicholas Petrick, PhD

Anthony P. Reeves, PhD

Ying Tang, PhD

RSNA

Joe Koudelik

Julie Lisiecki

I. Study Design discussed

- Description / Classification of the algorithms
- Set of parameters needed to characterize the performance of algorithms
- Possibility of “pooling” data from 1A & 1B together for this study
 - Looking for correlation
 - Need to look at change instead of absolute volume
 - Looking at accuracy, position, and precision – sensitivity/ specificity in characterizing change
- Struggling with the description/ classification of algorithms – according to the grade of user intervention needed
- Two levels of involvement exist:
 - 1) Complete reader/operator control to manipulate pixels – accurate boundaries
 - 2) Management of threshold or barrier function – not at pixel level or same level of detail

II. Discussion of a “collective result”:

- Draw the studies together – don’t treat them like they are all “independent studies.”
- Comparing algorithms is *not* like comparing readers; Each algorithm has a built-in bias to consider
- Also discussed: “extending” the results – add factor associated with different algorithm analysis
 - Focusing on short-term reproducibility
- Related to the bulls-eye performance approach:
 - Each algorithms class to achieve a specified performance level)

III. Recap of the Vol CT studies from QIBA WIKI:

- **1A** - Focus on inter- and intra-reader variability where Ground Truth is Known Deterministically
- **1B** - Focus on Volume Change Analysis of Pulmonary Nodules in Diagnostic Settings
- **1C** - Model Sources of Variability from a Systems Engineering Analysis
- **3A** – Inter-algorithm study of multiple phantom studies

Next steps:

- Dr. Fenimore to investigate and follow up with NIST data hosting possibility
- Dr. Athelougou to post today’s presentation/ diagram on the WIKI
- Group to look at 3A study design and send suggestions to Dr. Athelougou: MAthelougou@DEFiNiENS.com.
- Projected completion date for the 3A study is August 2011

Next call: Thursday, March 17, 2011, 11:00 am CDT.

Note: all documents are posted to the QIBA wiki at: <http://qibawiki.rsna.org>.