RSNA QIBA
Open Image Archives Requirements Project

COPD/Asthma User Requirements Gathering Session

November 2, 2011

Goal

- RSNA is exploring utilizing an Open Image Archive (OIA) to store, organize, and disseminate important imaging datasets.

- Understanding individual project requirements is critical to getting this right.

- The goal for this session is to walk through OIA requirements categories and capture COPD/Asthma priorities and needs.

OIA Requirements Categories

- **Archive Representation and Input**
  - Sheet 3: Data Acquisition
  - Sheet 1: Data Model
  - Sheet 2: Metadata

- **Archive Functionality**
  - Sheet 7: View/Query/Analyze
  - Sheet 4: Business Analytics and Metrics

- **Additional Areas**
  - Sheet 6: Computing Environment
  - Sheet 5: Workflow
  - Sheet 8: Regulatory Aspects
  - Sheet 12: Performance
  - Sheet 14: Availability/Reliability
  - Sheet 16: Accessibility/Usability
  - …

Notes

- Current Practice
  - Reference test objects are used. DICOM DVDs and disks are shipped around for dissemination.
  - ECLIPSE study data (currently controlled by GSK) stored to DVD and shipped to a CRO. Copied to an external hard drive and stored on a local DICOM server.
  - Dr. Coxson has an external portal for downloads.
  - COPDGene sends image data to Denver for QC, then sent to Boston. Phantom data sent to Iowa for an automated analysis (FTP site).
  - COPDGene is working with DBGap to make data available to research community. 1000 subject genotype

Notes

- It will be difficult to assess the quality of the image data in the future –

- Dbgap is not really set up to handle imaging data

- A publicly accessible database is valuable for the RSNA

- Yes an OIA is valuable, but nobody knows how to do it right or <u>pay for it</u>.

Notes

- DICOM format is critical
- Pathology images, if available, would be useful
  - Linking to pathology databases
- Metadata
  - Patient data (gender, age, height, weight)
  - Pulmonary lung function
  - Smoking history
  - Genome
  - GWAS
  - Blood pressure, depression questionnaire

Notes

- Phantom image data would be useful to archive
  - Support reproducibility
    - Design of phantom
    - Image data obtained
    - References to standards
- Quantitative Analysis
  - Segmentation results

Notes

- Querying the archive
  - Query on DICOM header parameters
  - Nomenclature – nothing that is really good.
    - Technical solution for reaching common nomenclature

- Performing comparisons of algorithms is useful

Notes

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