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 pay for it.
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

• X