Management of a Quality Control Program within a Large Healthcare Region

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RSNA 2012

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Background

• Health Canada Safety Code 35 (HCSC35)
  – Federal regulation released in 2008
  – Adopted by British Columbia in 2010
  – QC intensive (defines acceptance, daily, weekly, monthly, quarterly, semi-annual, and annual testing requirements)

• Diagnostic Accreditation Program (DAP)
  – Sets performance standards in BC to ensure patient safety and high quality of diagnostic care
  – Adopted HCSC35 QC recommendations
  – Audits facilities with diagnostic medical imaging departments every four years
Healthcare in Lower Mainland BC

- Consolidation of the health authorities occurred in 2011
  - Four health authorities, 27 hospitals, across a region spanning over 300 km
  - 33 CT scanners
  - 78 general radiology rooms (CR and DR)
  - 62 gen fluoro / IR / angio rooms
  - 60 mobile C-arms
  - 35 portable x-ray systems
  - Plus countless diagnostic displays, light boxes, lead aprons, CR cassettes, laser printers, etc. – all of which require regular QC testing
Challenges

• Scheduling
  – Multiple groups (techs, biomed, quality coordinators, physicists) require QC time at different frequencies
  – Each modality has different testing requirements

• Documentation
  – Testing results and QC images need to be documented for monitoring and accreditation

• Accessibility
  – Multiple groups contributing to documentation
  – Must be accessible at numerous locations across the region

• Hospital Interconnectivity
  – Each HA has a different RIS/PACS and scheduling system

• Oversight
  – Ensure regional compliance
  – Provide timely follow-up in the case of deficiencies
Our Approach

- RIS
- PACS
- Collaboration Platform
• Each x-ray unit is treated as a patient in RIS and given a unique name and identifier upon acceptance.

• Various QC exams (weekly, monthly, semi-annual, etc.) are added to the exam dictionary within RIS.

• Scheduling of QC exams follows similar workflow for patient examinations.

• “QC Exams” are coded as non-billable, non-reportable.
PACS System

• PACS is used for archiving QC images acquired as a part of regular testing for the lifespan of each imaging unit.

• Since PACS is accessible from remote locations across the region, images can be reviewed by multiple QC groups at different locations.
Collaboration Platform

• A collaborative documentation management system that allows contributions from various users and groups
• Cloud-based, therefore accessible through the web across the region
• Accessible with hospital login credentials
• Access control managed by QC department (minimal IT involvement)
• Allows setting of access controls for various users and groups
An Example: Patient data and scheduling

Patient info / selection

Exam selection

Population of local worklist

Schedule Exam
An Example: QC testing

- QC testing performed by required personnel (weekly QC performed by technologists)

- Images are archived to PACS

- Records of completed QC exams are available in the RIS
An Example: Documentation

• Results of the QC tests are recorded to the document management system

• Additional info
  – SOPs
  – Technical manuals
  – Standards
  – Calendars
Further Challenges

• Current system only used for CT QC
  – Long term objective: Image storage from equipment acceptance to decommission

• RIS limitations
  – system deployed on 3 or 4 RIS systems in region, 1 RIS is incompatible
  – Leads to image verification problems in PACS
  – RIS upgrade in process

• Electronic Scheduling
  – Not all sites have electronics scheduling, not utilizing full potential of QC scheduling system
Conclusions

• Since the RIS and PACS are already part of the hospitals’ infrastructure – no additional capital costs associated with their use for QC

• Scheduling follows typical clinical workflow

• Documentation and image archives are widely accessible, which aids local sites in their accreditation audits