

PACS Implementation and Development in the US

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Outline

- The changing character of the digital healthcare complex
- Enterprise implementation of the digital environment
- Communication issues in a digital environment
- Modalities generating larger image sets

Outline

- Increasing demand for storage and storage management
- Privacy and security (HIPAA) and risk management
- RHIOs and interoperability with the EHR and other information systems
- Economics of the digital healthcare environment
- Summary

Changing Character of the Digital Healthcare Complex

- Industrial players
 - Numerous acquisitions and mergers
 - Impact on healthcare providers
 - Present integration and end-of-life issues
 - Many start-up companies emerge
 - Introducing innovative technology
 - Providing good fit with small to medium size institutions

Changing Character of the Digital Healthcare Complex

- Healthcare providers
 - No longer if you will implement, but when
 - Early adopters changing or upgrading systems
 - Consolidation of healthcare facilities
 - Small to medium size institutions major purchaser of new systems

Changing Character of the Digital Healthcare Complex

- Healthcare personalities
 - Radiology no longer primary decision maker
 - IT becoming the dominant player, but has much to learn – **one solution doesn't fit all**
 - Turf battles still exist, but resources must be shared
- Funding
 - IT remains underfunded
 - Alternate funding methods considered

Enterprise Implementation of the Digital Environment

- Radiology may be the starting point, but all areas of healthcare **MUST** go digital
- Recognition of differences in workflow, functional and technical needs of other clinical areas and specialties
- Interoperability issues of clinical and business information (data and images) systems
- Ergonomics

Enterprise Implementation of the Digital Environment

- High availability
- Disaster recovery and business continuance
- Proactive education
- Re-engineering workflow to achieve the benefits of a digital environment

Communication Issues in a Digital Environment

- A filmless environment alone will not provide the economic and productivity benefits of a digital environment – a **paperless environment** is required
 - Speech recognition
 - Structured reporting
 - A hybrid approach
- Real-time versus batch reporting

Communication Issues in a Digital Environment

- Decision support
- Specialist to specialist
- Specialist to referring physicians
- Specialist to other healthcare professionals
- The role of wireless communications

Modalities Generating Larger Image Sets

- MDCT, contemporary MR systems, digital mammography, cardiology, US, PET/CT, pathology, etc.
- Several large image files versus thousands of image files or both
- Data rate (Bps) or GB per study or both
- New DICOM service classes

Modalities Generating Larger Image Sets

- Requirements for modalities
- Impact on
 - Infrastructure
 - Storage
 - Workstations
- Methods of interacting and visualizing studies

Increasing Demand for Storage and Storage Management

- Isolated silos of storage versus healthcare enterprise archive
- Funding of the storage solution
- Purchase storage from PACS or storage vendor
- All spinning media solution versus mixed media approach
- Alternative storage strategies
 - Disaster Recovery (DR)
 - Long term archive

Increasing Demand for Storage and Storage Management

- Storage management requirements
 - Fixed content files (FCF)
 - Variable content files (VCF)
 - Hierarchical Storage Management (HSM) versus Information Life-cycle Management (ILM)
 - Virtualization
 - High availability
 - Security
 - Audit trails
 - Administrative software

Privacy and Security (HIPAA) and Risk Management

- What to store, for how long and in what format
- Privacy at what cost
- Security at what cost
- Disaster Recovery
- Digital environment brings new issues to risk management

RHIOs and Interoperability with the EHR and Other Information Systems

- Government versus privately sponsored healthcare systems
 - Mandating interoperability
 - Competitive market place
 - Veterans Administration versus private US healthcare systems
 - US versus Canada and England
- The US government has mandated RHIOs – when, in what form and what cost

Economics of the Digital Healthcare Environment

- Interoperability issues are very costly
- Adherence to standards will reduce costs
 - Life expectancy of information systems
 - Information migration
- Intangible cost benefits must be considered
- Healthcare professionals must adapt to workflow requirements of digital environment if productivity gains are to be realized

Summary

- The more we accomplish, the more we realize there is so much more to accomplish to achieve the full
 - Productivity
 - Error reduction
 - Cost savings and
 - Improved patient carethe digital environment can provide.