



# PAC Manager: the Future Role of RT ? Experience from SIIM2007

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# PAC Managers :: Overview

- Typical PACS Administrator in the US.
  - 70% Male
  - 36-40 years of age
  - 1-3 years of PACS admin.
  - >20 years of RT
  - 1-6 years of experience of IT
  - Bachelor Degree
  - Hospitals with 100-300 beds



(Survey Findings: A Closer Look of PACS Administrator Salary Survey, Health Imaging & IT Vol.5 Number 6, June 2007)

# PAC Managers :: Job functions

1. Day-to-day operations/maintenance of PACS
2. Maintain Security, Training, Trouble-shooting, Problem follow-up
3. Plan, coordinate, implement upgrade of PACS (hardware & software)
4. Administer clinical operation of PACS
  - User account
  - Documentation and procedure
  - Define/implement data recovery
5. Coordinate special projects of PACS
6. Coordinate installation of new PACS
7. Set up and supervise training of PACS
8. Coordinate with vendors
9. Involve in purchase of PACS
10. Coordinate film digitizing and CD processing activities
11. Planning, coordinating, training, and implementing tele-radiology system
12. Supervise PACS support personnel
13. Manage department operational budget



(Survey Findings: A Closer Look of PACS Administrator Salary Survey, Health Imaging & IT Vol.5 Number 6, June 2007)

# PAC Managers :: Top Concerns

1. Keeping up with IT skills
2. Keeping up with clinical understanding
3. Job security
4. Compensation



(Survey Findings: A Closer Look of PACS Administrator Salary Survey, Health Imaging & IT Vol.5 Number 6, June 2007)

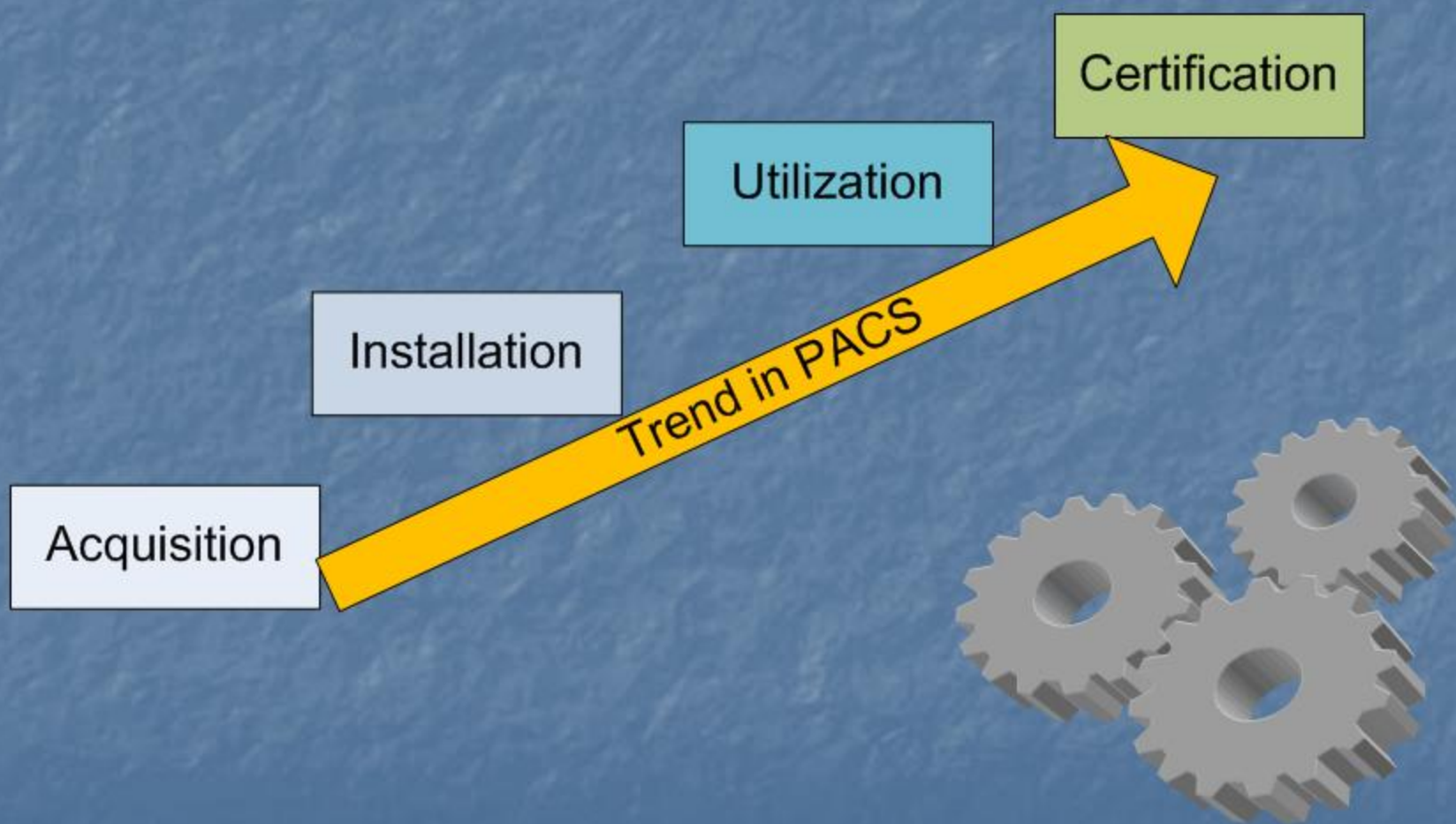
# PACS Administrator :: Domains

- PACS manager ~ IT/IS + RT (MT???)





# Trends in PACS



# Trends in PACS

- Acquisition & Standard (i.e. Planning, DICOM, HL7)
- Installation
  - Project Management (On time & Within allocated budget)
- Utilization (**theme of SIIM 2007!**)
  - Work-flow redesign
  - Communication of results
  - Reading room design (Lighting, Ergonomics)
  - Maintenance
    - Performance: Uptime, Backup & Recovery, Enterprise Archiving (99.9% availability ~ 8 hrs down/year)
    - Storage
    - QA/QC: Diagnostic Monitor/Recovery planing & testing
- Certification: CIIP (USA), MIIA (Asian)





# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

## Image Management (20%)

- Design the Reading Room (Ergonomics)
- Evaluate the Input/display devices
- Data integrity and optimal image flow (compression, storage, reports)
- Import & export data from/to PACS (DICOM/HL7)

## Information Technology (15%)

- Assess storage & archive needs
- Design and specify network architecture (LANs)
- Implement hardware & software
- Database design, SQL, Dashboard concepts
- Identify and implement IT standards (XML, HTTP)
- Replacement Schedule (planning, Tech. lifetime, Moore'law)





# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

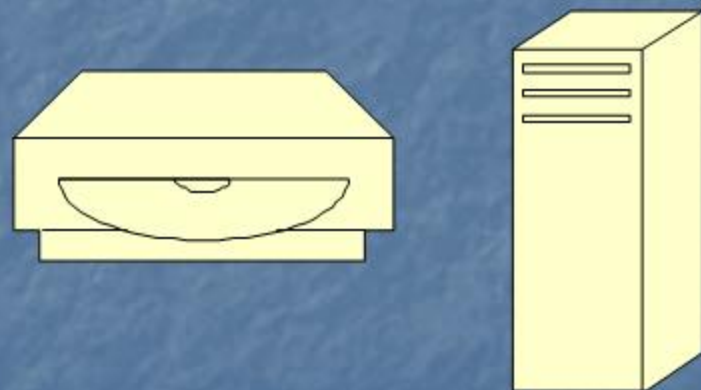
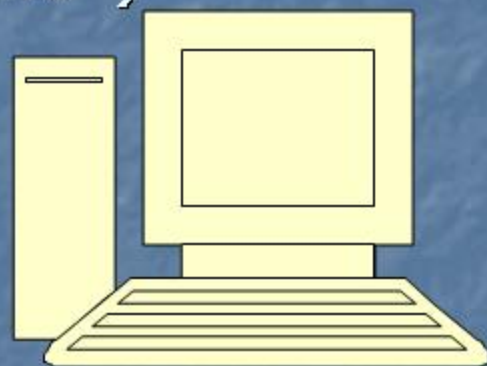
- Procurement (5%)
- Project Management (5%)
- Operations (10%)
- Result Communications (10%)
- Training and Education (5%)
- System Management (10%)
- Clinical Engineering (10%)
- Medical Informatics (10%)



# MIIA Certification

(Japan, Korea, Taiwan, Thailand\*)

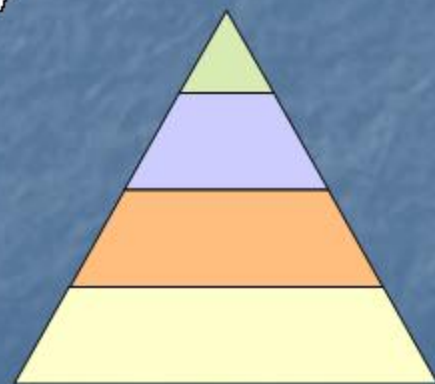
- Computer Hardware
- Digital Radiography Concepts
- Computer Network Technology
- Storage Technology
- QA/QC of PACS system
- PACS Concepts



\* Certification date approx. in September, 2007

# PAC Managers :: Future Roadmap for RT

- Knowledge in IT/IS
  - Hardware, Software, Network, Storage Planning, Data Recovery & Migration
  - New Modalities & How they will affect PACS (i.e. multi-slide CT, Digital Fluoroscopy, Digital Mammo)
  - Image management
  - Standards & Technologies. (HL7, DICOM, JPEG2000, AJEX, Web services)
- Project management skills (Procurement, Implementation of PACS)
- Training and Evaluation skills
- Communication Skills
  - Results: RT vs Radiologist vs Patients
  - Knowledge Management?





The End  
&  
Thank you!

Questions or Suggestions?



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

1. Procurement (5%)
  - Organization Readiness for e-Environment
  - Vendor Selection (understand PACS spec.& what you really need)
  - Negotiate Contract
2. Project Management (5%)
  - Goal Scope of the PACS project
  - Project management skills (cost, schedule, resource, plan)





# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

3. **Operations (10%)**
  1. Design and implement Quality Improvement
  2. Policies and procedures
    1. System management
    2. User management
  3. Compliance with Laws
4. **Communications (10%)**
  1. Communication with healthcare professionals (anatomy, positions, ICD, modalities)



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

4. Communications (contd.) (10%)
  - System availability
    - ✓ Downtime (99.9% availability ~ 8 hrs down/year)
    - ✓ Upgrades
    - ✓ Change in workflows (how PACS change our routines)
  - Develop feedback
    - ✓ Reporting
    - ✓ Survey



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

5. Training and Education (5%)
  - Determine Training Needs
  - Implement Training
  - Evaluate Training programs (surveys)
6. Image Management (20%)
  - Design the Reading Room (Ergonomics)
  - Evaluate the Input/display devices
  - Data integrity and optimal image flow (compression, storage, reports)
  - Import & export data from/to PACS (DICOM/HL7)



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

## 7. Information Technology (15%)

- Assess storage & archive needs
- Design and specify network architecture (LANs)
- Implement hardware & software
- Database design, SQL, Dashboard concepts
- Identify and implement IT standards (XML, HTTP)
- Replacement Schedule (planning, Tech. lifetime, Moore'law)



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

## 8. System Management (10%)

- Determine cost-effective system capacity
- Plan data recovery
- Monitor/trouble shooting (Network monitor/storage monitor)
- Plan and evaluate data migration (archive, lost study, move data to new PACs, database compatibility)
- Maintain data security & patient privacy



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

## 9. Clinical Engineering (10%)

- Assess imaging modality capability (CR&DR, Fluoroscopy, Cardiology, CT, MRI, Ultrasound, SPECT/PET, Therapy)
- Supervise modality integration
  - DICOM configuration
  - DICOM validation
  - DICOM transfer syntax
  - DICOM tools
- Display quality control
- Hazards specific to the healthcare environment (Electronic, Ionizing Rad, Magnetic field, Infection, Sterile)



# CIIP Test Content Outline

(Certified Imaging Informatics Professional)

## 10. Medical Informatics (10%)

- Medical Imaging standard (DICOM,HL7,ICD-10)
- Enterprise data archiving plan
- Master patient index file
- HIS (Hospital Information System)
- RIS (Radiological Information System)