

# PACS



---

## Policy Manual

Version 2.0 – January 1, 2007

*Example Hospital*

*Template Designed & Distributed by*



---

# PACS Policy Manual

---

**Version 2.0 - January 1, 2007**



## ***Acknowledgements***

OTech, Inc. would like to thank the following institutions and individuals for their assistance and contribution to this sample template:

- Baylor Medical Center at Garland, Texas
- Centennial Medical Center, Frisco, Texas
- Group Health Cooperative, Seattle, Washington
- Harris Methodist, Fort Worth, Texas
- Joseph Marion, ACS, formerly Superior Consultant Company, Inc.
- Markham Stouffville Hospital, Ontario, Canada
- Northeast Alabama Regional Medical Center, Anniston, Alabama
- Ohio State University Medical Center, Columbus, Ohio
- St. Joseph Health System, Southern California
- Texas Children's Hospital, Houston, Texas
- University of Texas Southwestern Medical Center of Dallas, Texas
- Shirley Weddle, Consultant, Dallas, Texas

## **Copyright Statement**

Copyright © 2006 by OTech, Inc. All rights reserved. Printed in the United States of America. Except as permitted under United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without prior written permission of the publisher.

This manual can be used within your organization to develop appropriate policies and procedures related to Picture Archiving and Communication Systems (PACS). These templates cannot be republished and/or used for educational purposes without explicit approval from the publisher.

## **Disclaimer Statement**

This publication is designed to provide information only in regard to the subject matter covered. If legal advice or other expert assistance is required, the services of a competent professional should be sought. Readers will be responsible for obtaining independent advice before acting on any information contained in or in connection with this manual. Your agency's board of directors should be consulted and their approval sought for all such matters affecting the risk and liability of your organization. The publisher is not responsible for any errors and/or oversights in these documents; the user should use them as they see fit and do their own validation and evaluation.

Distributed by OTech, Inc. – [www.otechimg.com](http://www.otechimg.com)  
Printed and bound by MCM Signs by Design, LLC  
Cover design by MCM Signs by Design, LLC  
Document production by Fortress Computer Service, LLC

ISBN: 0-9718867-5-X

# TABLE OF CONTENTS

<b>0 INTRODUCTION .....</b>	<b>1</b>
0.1 HOW TO USE THIS TEMPLATE .....	1
0.2 POLICY DOCUMENTATION MANAGEMENT SYSTEM (PDMS) .....	2
0.2.1 Features of PDMS .....	3
0.2.2 PACSDB Directory .....	3
0.2.3 PDMS Organization.....	4
0.2.4 Tips on Using the Editor .....	4
0.3 CUSTOMIZING THE TEMPLATE .....	5
0.3.1 Inserting Your Name and Logo.....	6
0.3.2 Adding Your Instructions .....	6
0.3.3 Editing Sample Documents .....	6
0.3.4 Distributing Entire Policy Manual to Multiple Sites .....	7
0.3.5 Sharing Individual Procedures with Multiple Sites.....	7
0.4 PACS MANUAL OVERVIEW AND STRUCTURE .....	9
0.4.1 Purpose .....	9
0.4.2 Scope .....	9
0.4.3 Responsibility .....	9
0.5 STRUCTURE .....	10
0.5.1 Level One: PACS Manual, Policy & Objectives.....	10
0.5.2 Level Two: Procedures.....	11
0.5.3 Level Three: Instructions .....	11
0.5.4 Level Four: PACS Records .....	11
0.6 PACS TERMINOLOGY .....	12
<b>1 PACS POLICIES .....</b>	<b>15</b>
1.1 PACS MISSION .....	15
1.2 RESPONSIBILITY AND AUTHORITY .....	16
1.2.1 PACS System Administration (SA) Competencies.....	17
1.2.2 RIS System Administration (SA) Competencies.....	19
1.2.3 Imaging Librarian PACS Competencies.....	20
1.2.4 Radiological Technologist PACS Competencies.....	21
1.3 PACS IMPROVEMENT PROCESS.....	22
1.4 PACS PROJECT GUIDING PRINCIPLES .....	25
1.5 MANAGEMENT REVIEWS .....	26
1.5.1 Annual PACS Plan .....	26
1.6 ORGANIZATIONAL STRUCTURE .....	26
<b>2 PACS PROCEDURES.....</b>	<b>27</b>
2.1 OPERATIONS .....	28
2.1.1 Image and Information Management.....	28
2.1.1.1 Checking for Exams with Zero Images.....	28
2.1.1.2 DICOM Worklist Procedures for Non-DICOM Modalities .....	29
2.1.1.3 ED-PACS Abnormal Exam Workflow .....	31
2.1.1.4 Exam Merge .....	33
2.1.1.5 Exam Split .....	34
2.1.1.6 Exam Verification .....	35
2.1.1.7 Exams with Images but No Interpretations.....	37
2.1.1.8 Incomplete Exams.....	38
2.1.1.9 Patient Merge.....	39
2.1.1.10 Patient Scheduling .....	41
2.1.1.11 Patient Status Tracking .....	43

2.1.1.12 Radiology – PACS Abnormal Exam Workflow .....	45
2.1.1.13 Change DICOM Header .....	47
2.1.1.14 Exam Ready Procedure .....	59
2.1.1.15 Patient Split .....	60
2.1.1.16 Cancelled Exams with Images .....	61
2.1.1.17 Local Worklist Cleanup.....	62
<b>2.1.2 Image and Document Import/Export.....</b>	<b>63</b>
2.1.2.1 Digitize Outside Films.....	63
2.1.2.2 Emergency Release of Medical Record Information .....	65
2.1.2.3 Import Images from CD's .....	67
2.1.2.4 Import Images from Portable X-ray Units (C-arms) .....	69
2.1.2.5 Legal Request for Images .....	71
2.1.2.6 Offline Media Support.....	73
2.1.2.7 Records Amendment Request by Patient .....	74
2.1.2.8 Release of Films for Research/Teaching Purposes .....	75
2.1.2.9 Release of Films to Physicians .....	76
2.1.2.10 Release of Images on CD to Physicians .....	78
2.1.2.11 Release of Films and/or Images on CD to Patients.....	88
2.1.2.12 Prior Study & Report Retrieval from Same PACS .....	89
2.1.2.13 Prior Study & Report Retrieval from Different PACS .....	90
2.1.2.14 Scan, Edit & Send Paper Documents.....	91
2.1.2.15 Scan & Send Paper Forms from Ultrasound .....	95
<b>2.1.3 Clinical Documentation and Communication.....</b>	<b>96</b>
2.1.3.1 Measurements/Observations (US only).....	96
2.1.3.2 Technologist Comments in PACS .....	97
2.1.3.3 ER Discrepancy Reporting Procedure.....	98
<b>2.1.4 Diagnostic Reporting and Billing .....</b>	<b>102</b>
2.1.4.1 Billing Errors.....	102
2.1.4.2 Billing Procedure .....	103
2.1.4.3 Report Distribution Workflow.....	104
2.1.4.4 Results Generation Using Conventional Transcription.....	106
<b>2.1.5 Patient Security and Privacy (HIPAA) and FDA compliance .....</b>	<b>107</b>
2.1.5.1 Account Creation.....	107
2.1.5.2 Audit Trails and Logging.....	111
2.1.5.3 Auto Logoff and Screen Savers .....	112
2.1.5.4 Create and Delete a Base Profile for All Users .....	113
2.1.5.5 Discard of Unused Equipment and Media .....	119
2.1.5.6 Emergency PACS Access.....	120
2.1.5.7 Encryption and VPN Usage.....	121
2.1.5.8 FDA Complaints .....	122
2.1.5.9 Maintenance of User Database .....	123
2.1.5.10 PACS Access and Password Policy.....	124
2.1.5.11 PACS Login and Password Reset.....	125
2.1.5.12 PACS Logout.....	127
2.1.5.13 PACS User Accounts .....	128
2.1.5.14 Security and Privacy Sanction Policy .....	129
2.1.5.15 Wireless Protection .....	131
<b>2.2 MAINTENANCE .....</b>	<b>132</b>
<b>2.2.1 QA/QC.....</b>	<b>132</b>
2.2.1.1 CR/DR Reject Analysis .....	132
2.2.1.2 Cassette Maintenance and Cleaning.....	135
2.2.1.3 Monitor Calibration .....	136
2.2.1.4 PACS Hardware Cleaning.....	137
2.2.1.5 Radiologist Peer Review in PACS.....	138
<b>2.2.2 Service Access to PACS .....</b>	<b>140</b>
2.2.2.1 Access to PACS by Service Personnel .....	140
2.2.2.2 Service and Support, Weekend & After Hours .....	141
<b>2.2.3 System Integrity.....</b>	<b>142</b>
2.2.3.1 Clearing Temporary Files in Internet Explorer.....	142
2.2.3.2 Exam Code Dictionary Entries.....	145

2.2.3.3 PACS Processes Check.....	146
2.2.3.4 Patch Management.....	147
2.2.3.5 Text Errors Corrective Action.....	148
2.2.3.6 Virus Protection.....	149
2.2.3.7 Local Worklist Cleanup.....	150
2.2.3.8 Weekly Reboot.....	151
2.2.4 <i>Configuration Management</i> .....	152
2.2.4.1 Add PACS Component.....	152
2.2.4.2 Change Management: Device Location.....	153
2.2.4.3 Modality and PACS Upgrades.....	154
2.2.4.4 Record Keeping Procedures.....	155
2.2.4.5 V and V Procedures: New and Upgrades.....	156
2.2.4.6 PACS Network Connection Requirements.....	157
2.3 DISASTER RECOVERY, BACK-UP AND DOWNTIME PROCEDURES.....	158
2.3.1 <i>Back-up Procedure</i> .....	158
2.3.2 <i>Digital Modalities Downtime</i> .....	160
2.3.3 <i>Infrastructure Downtime Procedures</i> .....	161
2.3.4 <i>PACS Disaster Recovery Procedure</i> .....	163
2.3.4.1 PACS Downtime Procedures.....	164
2.3.5 <i>Scheduled Downtime</i> .....	167
2.3.6 <i>Unscheduled Downtime</i> .....	169
2.4 PURCHASING REQUIREMENTS.....	171
2.4.1 <i>HIPAA Requirements</i> .....	171
2.4.1.1 Business Associate (BA) Agreement.....	171
2.4.1.2 Manufacturer Disclosure Statement (MDS) for Security.....	174
2.4.1.3 Top Ten Security Issues and Concerns.....	175
2.4.2 <i>PACS RFP</i> .....	179
2.4.3 <i>Request for Quotation (RFQ) for RIS</i> .....	180
2.4.4 <i>Interface Requirements</i> .....	181
2.4.4.1 Modality Interface Requirements.....	181
2.4.4.2 PACS Interface Requirements.....	181
2.4.4.3 Workstation Interface Requirements.....	181
2.4.5 <i>Peripheral Requirements (print/CD)</i> .....	181
2.5 APPLICABLE STANDARDS AND REFERENCE.....	182
2.5.1 <i>AAPM</i> .....	182
2.5.2 <i>ACR</i> .....	182
2.5.3 <i>DICOM</i> .....	183
2.5.4 <i>HL7</i> .....	188
2.5.5 <i>IHE</i> .....	189
2.5.6 <i>List of books, publications and other resources</i> .....	192
2.5.7 <i>NEMA</i> .....	193
<b>3 PACS RECORDS.....</b>	<b>195</b>
3.1 INTERFACE SPECIFICATIONS.....	195
3.1.1 <i>DICOM Conformance</i> .....	195
3.1.1.1 DICOM conformance overview chart.....	195
3.1.1.2 DICOM work list overview chart.....	195
3.1.1.3 How to Read a Conformance Statement.....	196
3.1.1.4 Sample Conformance Statements.....	198
3.1.2 <i>HL7 Interface Documents</i> .....	198
3.2 TROUBLESHOOTING RECORDS.....	199
3.2.1 <i>Image Header Dumps</i> .....	199
3.2.2 <i>Network Sniffer Dumps</i> .....	199
3.3 TECHNICAL SPECIFICATIONS.....	200
3.3.1 <i>Architectural Drawings (PACS Components)</i> .....	200

3.3.2 Configuration files.....	200
3.3.3 Equipment List and Location Charts .....	200
3.3.4 Routing charts .....	200
3.3.5 Workflow diagrams.....	200
3.4 PROJECT PLANS .....	200
3.5 TRAINING MANUALS .....	200
<b>4 APPENDIX A – SAMPLE DOCUMENTS.....</b>	<b>201</b>
<i>DICOM/IHE Requirements Template for PACS.....</i>	203
<i>Manufacturer Disclosure Statement .....</i>	217
<i>Business Associate Agreement .....</i>	227
<i>Sample Ultrasound Form – Renal Artery .....</i>	233
<i>Sample Ultrasound Form – Twin Obstetrical .....</i>	235

**Refer to the CD for these additional sample documents:**

*AAPM Standard*  
*Certification Requirements Document*  
*DICOM Conformance Overview Chart – Sample and Template*  
*DICOM Conformance Sample and Template*  
*DICOM Standard*  
*Example Job Descriptions*  
*FDA Form 3500A*  
*Guidelines for Conformance Statements*  
*HL7 Standard*  
*IHE Standard*  
*IHE Product Evaluation Worksheets*  
*IHE Radiology User’s Handbook 2005*  
*Installation Checklist*  
*OSI Network Model*  
*Remote Service Interface*  
*Responsibility and Accountability Chart*  
*Sample PACS Mission Statement*  
*Sample RFP for PACS*  
*Sample RFQ for RIS*  
*Sample Signoff Sheet*  
*Sample Standards Documents*  
*Security and Privacy Requirements for Remote Servicing*  
*Typical Reject Analysis Report*  
*US Form – Abdominal Sonogram*  
*US Form – Abdominal Aorta Sonogram*  
*US Form – Breast Sonogram*  
*US Form – Carotid Duplex Sonogram*  
*US Form – General Small Parts Sonogram*  
*US Form – Hepatic Doppler Worksheet*

*US Form – Limited Obstetrical*  
*US Form – Lower Extremity Venous Sonogram*  
*US Form – Neonatal Head Sonogram*  
*US Form – Obstetrical 1<sup>st</sup> Trimester*  
*US Form – Obstetrical Biophysical*  
*US Form – Obstetrical Estimated Fetal Weight and Dates*  
*US Form – Obstetrical Ultrasound Exam*  
*US Form – Obstetrical Dates and Percentiles*  
*US Form – Obstetrical Dates Calculate*  
*US Form – Obstetrical Dates*  
*US Form – Pediatric Hip Sonogram*  
*US Form – Pelvic Exam*  
*US Form – Pyloric Stenosis*  
*US Form – Renal Artery Sonogram*  
*US Form – Renal Pancreas Transplant*  
*US Form – Renal Sonogram*  
*US Form – Scrotal Sonogram*  
*US Form – Thyroid Sonogram*  
*US Form – Twin Obstetrical*  
*US Form – Upper Extremity Arterial Evaluation*  
*US Form – Upper Extremity Venous Evaluation*  
*US Form – Venous Mapping*  
*Worklist Attributes Spreadsheet and Template*

## **0 INTRODUCTION**

---

### **0.1 How to Use This Template**

Documentation of policies and procedures, both technical and procedural, is critical for the proper operation and management of a Picture Archiving and Communication System (PACS). Unfortunately, because the systems are so new in many healthcare facilities, it is necessary to design PACS policies and procedures from scratch - or worse, on an as-you-go basis.

As you may imagine, the creation of policies and procedures can be an overwhelming and intimidating task, but it doesn't have to be. By leveraging existing resources, one can start with baseline policies which can be molded to meet the specific needs of a particular system, such as PACS. It also is important to prioritize which policies should be put in place first. For example, when starting out it would be more important to have disaster recovery and business continuity as well as downtime procedures in place than a procedure on how to produce CDs for patients.

It is imperative when customizing these policies, procedures, and forms to carefully review and revise them to fit the structure and needs of your institution. This includes replacing the Example Hospital logo with your hospital logo, adding/deleting/revising policies and procedures to make them specific to your own program, and adjusting the forms to fit your institution requirements.

We have created a fictional hospital, Example Hospital, to better illustrate a finished Policy and Procedure Manual. Examples of Example Hospital policies and procedures are shown throughout this workbook. The Example Hospital PACS Manual is meant as an example only. Several of the example procedures are based upon true-life scenarios as provided by several institutions, therefore there could be some resemblance to an actual PACS system. These examples are included to assist you in better understanding what to consider as you create a customized Policy and Procedure Manual for your PACS system.

## 0.2 Policy Documentation Management System (PDMS)

The PACS Manual template is accessed through the Policy Documentation Management System (PDMS). This database system streamlines your work creating and managing policy and procedure documentation. The main benefits of PDMS are:

- Easy to use
- Reduces development time
- Makes information easily accessible
- Easy to organize information
- Minimizes paper
- Provides a tool for maintaining multiple manuals and documentation

The screenshot displays the Policy Documentation Management System (PDMS) interface. The window title is "Policy Documentation Management System". The menu bar includes "File", "Records", "Search", "View", "Reports", and "Help". The interface is divided into several sections:

- Manuals:** A list of manuals, currently showing "PACS Policies and Procedures".
- Policies & Procedures:** A tree view showing the structure of the manual, including:
  - INTRODUCTION
    - 1 How to Use This Template
    - 2 Policy Documentation Mgmt System
    - 3 Customizing the Template
    - 4 PACS Manual Overview
    - 5 Structure
    - 6 PACS Terminology
  - POLICIES
    - 1 PACS Mission
    - 2 Responsibility and Authority
    - 3 PACS Improvement Process
    - 4 PACS Project Guiding Principles
    - 5 Management Reviews
    - 6 Organizational Structure
  - PROCEDURES
    - 0 Introduction
    - 1 Operations
      - 1 Image & Information Management
      - 2 Image and Document Import/Export
      - 3 Clinical Documentation and Communicat
      - 4 Diagnostic Reporting and Billing
      - 5 Patient Security & Privacy HIPPA & FDA
    - 2 Maintenance
      - 1 QA/QC
      - 2 Service Access to PACS
      - 3 System Integrity
      - 4 Configuration Management
    - 3 Disaster Recovery, Backup & Downtime
    - 4 Purchasing Requirements
      - 1 HTDAA Requirements

- Item Preview:** A preview of the selected item, showing the title "Policy Documentation Management System", "PACS Policy Manual", "Example Hospital", "Version 2.0 - January 1, 2007", and the OTEch logo with the text "Health Care Technology Solutions".
- Table:** A table listing items with columns for "Item", "Edited", and "Created".

Item	Edited	Created
PPDMS by OTEch, Inc.	1/2/2007 4:26:55 PM	1/18/2006 8:30:33 PM
Copyright Statement	5/15/2006 2:16:56 PM	2/2/2006 11:33:12 AM
Disclaimer	2/2/2006 11:39:05 AM	1/18/2006 8:32:25 PM

### 0.2.1 Features of PDMS

Features of the PDMS database include:

- Basic text editor
- Built-in spell checker and thesaurus
- Hyperlinking within the manual, to external files and other locations
- Linked and relative path attachments
- Embedded hyperlinks in Item details
- Full Undo/Redo
- Import and Export capability of Items
- Drag & drop to reorder categories and items
- Bookmarks
- Keywords
- Password protected Manuals (optional)
- Locked Items
- Simple Reports
- Reports output to HTML, Acrobat, RTF, JPG, Excel and Text, as well as printer
- Copy source text as Plain Text or Rich Text
- Paste images from Clipboard into editor
- Run entirely from a removable device (such as USB Flash Drive)

### 0.2.2 PACSDB Directory

#### PACSDB Location

The PACSDB folder is the central repository for the PACS Policy Manual. For a single user installation, it is located in **C:\PACSDB**. For multi-user installations, the location may vary.

To locate the PACSDB directory:

- Click on File, Open.
- Highlight the "Local" database connection.
- Click on Edit. The PACSDB Directory location will appear grayed out on the Folder line.
- Click Cancel to exit the dialog box and then Cancel again to return to the main screen.

#### PACSDB Directory Contents

The PACSDB database directory contains these folders and files:

- **Attachments folder** - The Attachments folder contains the attached files within the PACS Manual.
- **Examples folder** – The Examples folder contains all of the sample forms and template files that are referenced or linked to from the PACS Manual template. Files

## Example Hospital

will be in one of six formats: Microsoft Word, Microsoft Excel, PDF, Microsoft PowerPoint or Microsoft Project.

- **Export folder**– The Export folder is initially empty.
- **Instructions folder** – The Instructions folder contains sample instructions included in the PACS manual template that were too large to embed in the database. Most have images or screen captures. Maintaining large files outside of the database will help keep it running smoothly and with better response time. There is a hyperlink in the procedures that opens these larger files.
- **Database files** – The files in the PACSDB folder are the main files to operate the database.

### 0.2.3 PDMS Organization

The database is organized into these elements:

**Manuals** – Manuals appear at the top left portion of the screen. They are the highest level in the hierarchy. You can create multiple manuals within PDMS. Manuals are separate and standalone entities. You can optionally assign passwords for access to a particular manual. Since manuals are separate, you cannot perform hyperlinks across manuals, so keep that in mind as you plan your documentation management strategy. To add another manual, simply click into the Manuals area, right click and select Add, or select Records, Add from the menu bar.

**Policies and Procedures** – Policies and Procedures appear in the bottom left portion of the screen. They represent the chapters and subsections of the manual. This is a tree structure, and it is very easy to use. To add or edit, just click into the Policies and Procedures area and right click or select Records, Add from the menu bar. You can drag and drop categories and easily reorganize your information.

**Items** – Items appear in the upper right portion of the screen. Items are the lowest level of the hierarchy and contain your text content. To add an item, click in the Item area and right click and select Add, or click in the Item area and select Records, Add from the menu bar.

**Item Preview** – The Item Preview window is in the lower right portion of the screen and displays a preview of the Item content.

All the PDMS screen elements can be easily customized for your viewing preferences. Each section can be sized and moved. You can customize the look and features of PDMS by selecting File, Configure from the menu bar. Refer to the Help File for more information on setting up and using PDMS.

### 0.2.4 Tips on Using the Editor

The text editor within PDMS has basic capabilities. It is not a full-featured word processor. Your approach to text entry should be one of function rather than form. The more basic the format, the quicker and easier it is to develop and maintain your content.

### Style Standards

- The margins for text within the template begin at 1.0. There is no right margin stop. The text automatically wraps on screen and formats in the printout.
- Bullet hanging indents are set at 1.75.
- The font for Item Titles is Arial 14 point bold.
- The font for section headings is Arial 12 point bold underline.
- The font for text is Arial 11 point.

### Copy and Pasting

When you copy and paste text from other sources you can select plain text or RTF text. The RTF text option will maintain some formatting characteristics but not all features. There will be editing work to do after you copy and paste text. Here are some suggested tips:

- Once you have pasted the text, highlight all of the text.
- Consolidate all margin stops into one. The editor tends to insert a few extra stops.
- Move the one margin stop to the right past 1.0 and then back left to 1.0. All left margin text will be aligned.
- Format your text with fonts and headings.
- For bullets:
  - Highlight your list of bullet points.
  - Slide the bottom margin stop to 1.75 (you have to click on the **middle section** of the stop).
  - Click the bullet button. Your text will be formatted with hanging indents.

## 0.3 Customizing the Template

The recommended steps for customizing the template are:

- Install the PDMS application.
- Browse through the PACS Manual.
- Read the Help file.
- Select the procedures in the manual you want to adopt.
  - Print the **Items Additions Report** by selecting Reports and Items Addition Report. For the date range use 01/01/2006 through the current date. This will print a list of all of the items in the database.
  - Use this report to select the content that you would like to use.
  - Create a category under PACS Policies and Procedures to place content that you are not using. Name it “z Not Currently Used” or some other descriptive name. Move items here that you may want to exclude or save for a later date.
- Update the template content with your customized content.
- Integrate new samples as they are released by OTech, Inc.

### 0.3.1 Inserting Your Name and Logo

The Example Hospital header appears on each of the items within the PACS manual. It is recommended that you insert your name and/or logo as you develop your customized content. The Example Hospital header serves as a progress marker for you and will help you determine which policies and procedures you have updated and which ones are yet to be developed. The text editor has basic functionality and does not include global search and replace function at this time.

If you choose to update the manual with your name all at one time, you can follow these steps:

- Select Search from the Tool bar.
- Type in Example Hospital and click New Search.
- Every item with Example Hospital will appear in a list.
- You can drill down into each item and edit them one by one.

See Tips on Using the Editor for more information.

### 0.3.2 Adding Your Instructions

The policies and procedures within the manual were designed to be generic and usable by any organization. The instructions are very specific to a location or system. In the printed version, these samples are denoted by the word **SAMPLE** and are contained in a highlighted box. In the PACS Manual sample instructions are identified by the word **SAMPLE** in bold, red text underneath the Example Hospital header.

The Instructions provided with the PACS Manual template are samples that you can use as ideas on how to get started. You can create new or update the ones provided in the template. The sample instructions have been placed into a separate category called **Sample Instructions** with two subcategories: **Operations** and **Maintenance**. They are named with the same name as the procedure they relate to and their name has an asterisk (\*) in the beginning. The asterisk helps identify them as samples and eliminates the problem of duplicate item names.

You can continue to segregate your instructions if you choose or you can keep them with their associated procedure. Often there may be several instructions associated with a procedure so you can create links to them where appropriate.

To edit the instructions:

- Double click on the Item you want to edit.
- Update the header with your hospital name.
- Delete the word Sample.
- Type your instructions.
- Click Save & Exit to return to the main view.

See Tips on Using the Editor for more information.

### 0.3.3 Editing Sample Documents

The PACS Manual is rich with valuable sample documents and templates that you can customize. Throughout the PACS manual there are links to these documents within their context. Within PDMS you can also access these files directly from the Templates

## *Example Hospital*

and Sample Documents Section. Within this section all sample documents have been attached and be viewed, accessed and edited from one location. The documents are also located in the PDMS directory in the Examples folder.

### **0.3.4 Distributing Entire Policy Manual to Multiple Sites**

Some organizations may choose to develop and maintain the PACS Policy Manual at a single location and then distributed it to multiple sites. **Follow these steps if all remote locations will use the exact same policy manual.**

**WARNING:** If each site has the ability to create custom procedures for their location, this procedure does not apply. Following these steps will overwrite any custom content a particular location has created. If each location needs to share common procedures and have custom procedures for their location, refer to the section on Sharing Individual Procedures with Multiple Sites. For safety purposes, please make a full backup of your PACSDB folder before importing new procedures.

#### **At the Source Site:**

- Customize the content of the Policy Manual at the source location. All database content and attached files are maintained within the PACSDB directory.
- When the Manual is ready for release to other locations, copy the source PACSDB directory to media or a shared location and distribute the updated manual to the remote sites.

#### **At the Remote Sites:**

- First install the PDMS application at each location and workstation that will be accessing the PACS Manual.
- At each site, copy the PACSDB Directory from the source site server or media and overwrite the local PACSDB directory with the new manual release. To locate the PACSDB directory click on File, Open.
- Highlight the "Local" database connection.
- Click on Edit. The PACSDB Directory location will appear grayed out on the Folder line.
- Click Cancel to exit the dialog box and then Cancel again to return to the main screen.

### **0.3.5 Sharing Individual Procedures with Multiple Sites**

Some organizations may want to release common policies and procedures to multiple locations while giving them the ability to maintain specific policies and procedures for each location. To distribute individual policies and procedures to multiple locations, use the import/export features within PDMS. This feature enables users to share common items with other PDMS users.

## *Example Hospital*

If all locations maintain the exact same PACS Manual, refer to the section on Distributing Entire Policy Manual to Multiple Sites

To locate the PACSDB directory:

- Click on File, Open.
- Highlight the "Local" database connection.
- Click on Edit. The PACSDB Directory location will appear grayed out on the Folder line.
- Click Cancel to exit the dialog box and then Cancel again to return to the main screen.

### **At the Source Site (Exporting Items):**

- First verify that the two folders named Import and Export are in the PACSDB directory. These folders must be present to import and export items. These folders will hold the import and export files.
- Update the PACS Manual with all content changes. Be sure to update all release numbers and dates according to the standards you have set within your organization.
- Once all changes are complete, mark the items to be exported and distributed to multiple locations.
- To mark an item for export, highlight the item, right click and select Tagged for Export. A check mark will added to the menu option showing it has been tagged for export. Mark each item that you want to include in your PACS Manual release.
- Next, export the tagged items to a separate file by selecting File, Database, Export. The export dialog box appears.
- Click on the ... button and select the PACSDB\Export folder.
- Then type in the name of the file.
- Type in your comments regarding the export e.g. PACS Manual Release X.X to affiliate hospitals on (date).
- Click Start.
- When complete the Export Summary screen appears.
- The export file is in an XML format and is plain ASCII text (suitable for attaching to an email), the format is fully descriptive and can contain all aspects of a Manual/Policy or Procedure and Item (for example, hyperlinks, embedded images and attachments are all correctly handled).
- Click OK and Close to return to the main screen.
- Copy the XML file in the PACSDB\Export folder to your distribution media.
- Send updates to the remote sites for them to import into their custom PACSDB database.

Please review Importing and Exporting Items in the PDMS Help file for more detailed information.

### **At the Receiving Sites (Importing Items):**

- Copy the PDMS XML file to your local PACSDB\Import folder.
- Launch PDMS containing the PACS Manual.

## *Example Hospital*

- From the main screen, select File, Database, Import. The Import dialog box appears.
- Click on the ... to select the folder. Select your PACSDB\Import folder, select the xml file you just copied and click Open.
- The Import Summary Screen appears.
- Click OK and Close to return to the main screen.
- Verify the imported items have been added or updated to your PACS Manual.

Please review Importing and Exporting Items in the PDMS Help file for more detailed information.

## **0.4 PACS Manual Overview and Structure**

### ***0.4.1 Purpose***

The purpose of this PACS Manual is to define the PACS policy, roles, responsibilities, procedures, and records within the Example Hospital PACS System. The PACS Manual provides a framework to assist the organization in:

- Meeting the requirements of the HIPAA Regulation regarding privacy and security
- Enhancing relationships between the organization and its customers
- Facilitate a quality environment to enhance patient care
- Provide an overall cost reduction and increased competitiveness
- Provide continuous process improvement
- Assisting new employees to familiarize themselves with the specific environment

### ***0.4.2 Scope***

This PACS manual covers the policies and procedures for the Example Hospital PACS system. Employees and contractors working within the organization are responsible to understand and comply with the requirements in this document. PACS includes the connection of any digital modalities with the PACS network and infrastructure, the CR and DR systems, image archive, viewing stations, including Radiology and physicians, and speech recognition system. Its scope does NOT include the Radiology Information System (RIS), which is covered in a separate manual.

### ***0.4.3 Responsibility***

The PACS Administrator/Radiology IT Manager is responsible for the contents, implementation, and maintenance of this PACS Manual.

## 0.5 Structure

The PACS Manual provides the documented guideline for the Institution. Policies and procedures support the requirements of this PACS Manual and additional work instructions are provided to assure that PACS operates as expected meeting the PACS mission statement. PACS records are documented and maintained in order to demonstrate conformance to specified requirements and to demonstrate the effective operation. The tiered documentation approach, as reflected below, is intended to provide the flexibility to develop procedures around operations while assuring that the overall PACS system requirements are satisfied and maintained.

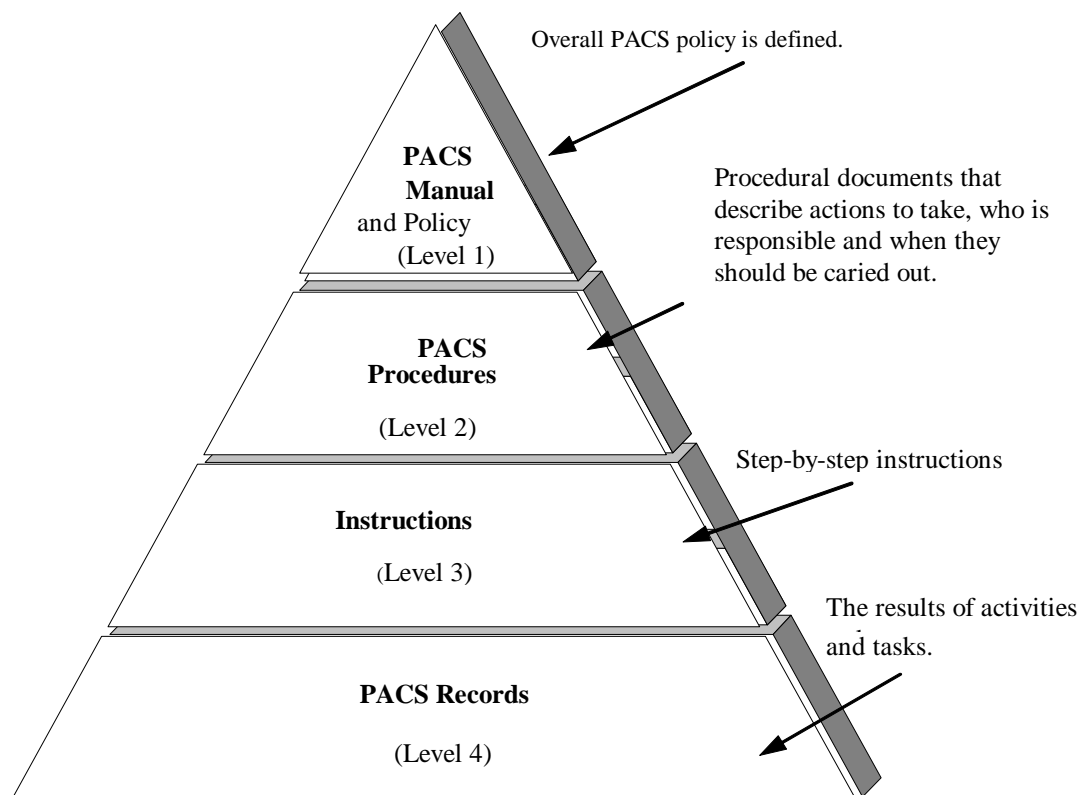


Figure 1: PACS Tiered Approach

### 0.5.1 Level One: PACS Manual, Policy & Objectives

The PACS Manual and policy includes the documented intention and direction expressed by top management and sets a framework for the Institution's objectives and goals. It describes the overall PACS management system, its processes and procedures, and the interrelationship among those processes and procedures, lists the instruction documents and the documents that are used to maintain the PACS file, i.e.

## *Example Hospital*

the PACS Records. The information at this level includes the PACS Mission Statement, governance, and planning and review process.

### **0.5.2 Level Two: Procedures**

This level identifies the documented processes and procedures which have a direct relationship to core business processes or to overarching support processes to meet the general requirements of the PACS System. These processes and procedures define the interactions and responsibilities within the PACS support structure. The objective of these policies is NOT to stifle the implementation of this technology through additional bureaucracy but rather facilitate the proper and efficient operation. One should note that when implementing new technologies, there is an increasing dependence on these electronic systems (film being replaced with softcopy), and proper back-up, fail-over policies can alleviate the inherent risk introduced with the dependence on electronic means. The procedures are typically institution dependent, but vendor independent, which means that when changing a PACS vendor, one should be able to re-use the same policies and procedures.

### **0.5.3 Level Three: Instructions**

Included with each procedure are relevant work instructions, checklists, handbooks, reference guides, training aids and “cheat-sheets.” These additional tools give detailed information and references required to accomplish various processes and/or procedures. These instructions are highly institution and vendor dependent and therefore they are included as examples only. It is expected that the institution will generate these depending on their specific environment.

### **0.5.4 Level Four: PACS Records**

PACS records are the documented results of PACS support and management tasks. Completed forms, records, and data are maintained and available for review and analysis. These records are identified within the documentation contained in the higher levels. Level 4 records demonstrate objective evidence that the PACS management and support system is implemented and operating. In addition, they serve as a reference for troubleshooting and/or the implementation of changes and upgrades.

## 0.6 PACS Terminology

AAPM	American Association of Physicists in Medicine; specifies image quality criteria.
ACR	American College of Radiology; initiator of DICOM standardization.
BA	Business Associate; HIPAA term for organizations that extend the “chain of trust.”
CAD	Computer Aided Diagnosis; software generated assistance for Radiologists.
CAP	College of American Pathologists; initial authors of SNOMED.
CCOW	Clinical Context Object Working Group; HL7 standard for exchanging context.
CDA	Clinical Document Architecture; HL7 standard for exchanging persistent objects.
CE	Covered Entity; HIPAA term to identify organizations subject to its regulation.
CPT	Current Procedural Terminology; codes for diagnostic procedures.
CR	Computerized Radiography; digital replacement of conventional film technology.
CRT	Cathode Ray Tube; conventional monitor technology.
CT	Computed Tomography; X-ray modalities providing axial slices.
DICOM	Digital Imaging and Communications in Medicine; de facto imaging standard for exchange.
DR	Digital Radiography; digital X-ray technology using direct capture on detectors.
DVH	Dose Value Histograms; used in RT for radiation dose calculations.
EHR	Electronic Health record; draft standard issued by HL7 for electronic patient records.
EMR	Electronic Medical Record; synonym for EHR, typically for single institution.
ER	Emergency Room; hospital department for acute cases of injury.
FDA	Food and Drug Administration; US agency to regulate medical devices.
GSDF	Grayscale Standard Display Function; used to specify response of monitors and printers.
HCF	Health Care Facility; hospital, clinics, etc. that provide health care.
HCPS	Healthcare Common Procedure Coding System; coding system for procedures.
HIPAA	Health Insurance Portability and Accountability Act; Regulation for patient privacy/security.
HIS	Hospital Information System; IT system for patient admission, billing, etc.
HL7	Health Level Seven; standard for electronic health care transactions.
ICD-9	International Classification of Diseases- version 9; coding of all diseases.
ICU	Intensive Care Unit; hospital department for seriously ill patients.
IHE	Integrating the Health Care Enterprise; specifications of profiles for connectivity.
IP	Internet Protocol; commonly used with TCP to communicate information over networks.
IPSec	Secure IP protocol; Layer 4 protocol that is secured using applicable protocols.
IT	Information Technology; department that takes care of computers and software.
JND	Just Noticeable Differences; measure used to identify human visual perception.
JPEG	Joint Photographic Experts Group; specifies compression methods standardized by ISO.

## Example Hospital

LCD	Liquid Crystal Display; flat panel display technology.
LUT	Look Up Table; table with x and y coordinates used to map data into other domain.
LVL	Level; midpoint of range of grayscale values mapped on monitor or printer grayscale.
MPEG	Moving Picture Experts Group; standards to compress audio-visual information such as movies and video.
MOD	Magneto Optical Disk; technology used for exchange media storage and jukeboxes.
MR	See MRI.
MRI	Magnetic Resonance Imaging; imaging technology using strong magnetic fields.
NEMA	National Electrical Manufacturers Association; trade organization facilitating DICOM.
NLM	National Library of Medicine; US agency involved with standardization.
NM	Nuclear Medicine; acquisition modality that uses nuclear pharmaceuticals as tracers.
OR	Operating Room; hospital department for surgery.
PACS	Picture Archiving and Communication System; system to exchange medical images.
PHI	Patient Health Information; HIPAA term for confidential patient information.
PMA	Pre Market Approval; approval issued by FDA to market a new medical device.
QA	Quality Assurance; activity used to check image quality and patient demographics.
QCA	Quantitative Cardiac Analysis; typically used to assess cardiac function.
QVA	Quantitative Vascular Analysis; typically used to assess vessels, e.g., plaque.
RAID	Redundant Array of Inexpensive Disks; reliable fast accessible storage media.
RIS	Radiology Information System; hard/software for radiology scheduling, billing, etc.
RSC	Remote Service Center; vendor facility which provides remote diagnostics for devices.
RT	Radiation Therapy; department conducting therapy mostly through radiating patients.
RT	Radiological Technologist; radiology professional performing diagnostic imaging exams.
SC	Secondary Capture; DICOM image type for scanned films and framegrabbers.
SCSI	Small Computer System Interface; most common interface used to attach storage disks.
SMPTE	Society for Motion Picture and Television Engineers; standards for display test images.
SNOMED-CT	Systematized Nomenclature of Medicine-Clinical Terms; standard coding for medicine.
SOP	Service Object Pair; typically used in conjunction with "Class" to identify DICOM function.
SSL	Secure Sockets Layer; allows for exchanging encrypted messages.

## *Example Hospital*

T1	Spin-lattice relaxation time; commonly used MRI imaging acquisition technique.
T2	Spin-spin relaxation time; commonly used MRI imaging acquisition technique.
TIFF	Tagged Image File Format; widely supported public domain raster file format.
TLS	Transport Layer Security; addition to the OSI layer 4 transport layer to exchange secure messages.
TPO	Treatment-Planning-Operation; HIPAA term identifying medical treatment process.
UID	Unique Identifier; unique number to identify, for example, images, reports, etc.
UML	Unified Modeling Language; standard used for specifications such as DICOM and IHE.
URL	Unified Resource Locator; used to locate information via web access.
VA	Department of Veterans Affairs; US agency providing medical care to veterans.
WW	Window Width; range of grayscale values to be mapped on monitor or printer grayscale.
XML	Extensible Markup Language; tagged protocol used to exchange information.