Quality Management in the Imaging Sciences

Model 95-502-1000

By Jeffrey Papp, PhD, RT®(QM)

The new, up-to-date second edition of this outstanding guide offers you all the tools, skills and practical knowledge you need. It incorporates both quality management and quality control information for all the imaging sciences, with chapters devoted to a specific quality control measures for mammography, CT, MRI, ultrasound, and nuclear medicine, in addition to general radiography.

The SINGLE most complete source for quality management.

Chapter 1 - Introduction to Quality management
• Identify the need for quality management in diagnostic imaging
• Explain the differences between quality assurance, quality control and quality management
• Problem identification and analysis

Chapter 2 - Quality Management Tools and Procedures
• Discuss the graphs and charts used to organize and present total data in quality management
• Describe the four main components of a quality management program
• Policies and procedures for the administrator, quality management technologist and a radiation safety program

Chapter 3 - Film Darkrooms
• Explain the function and characteristics of a darkroom environment used for diagnostic imaging
• Darkroom lighting and the importance of proper safelight types and functions
• Viewbox quality control

Chapter 4 - Film Processing
• State the function of developer and fixer solutions and explain the proper mixing concentration for both solutions
• Explain the chemical safety procedures described by OSHA
• Describe the six main systems of automatic film processors and state the function of each

Chapter 5 - Processor Quality Control
• Understand the importance of a processor quality control program and the main components in diagnostic imaging
• The factors that affect chemical activity and the proper processor cleaning procedures
• Perform sensitometric tests to monitor processor function and chemical activity performance

Chapter 6 - Silver Recovery
• Describe the role and reason of silver recovery in diagnostic imaging
• The methods of recovering silver from processing solutions
• Explain the methods of recovering silver from film

It’s all here:
• The most up-to-date information for essential areas of QM: darkrooms, processing, equipment and accessories, artifacts, repeat analysis, fluoroscopic and advanced imaging equipment
• Mammography chapter that corresponds with new standards outlined in the Mammography Quality Standard Act
• Chapter on tools and procedures that relates to information on the use of equipment and protocols in imaging technology
• How to procedures that clarify all the necessary steps in proper QM evaluation and documentation
• Latest changes in technology and current federal regulations
• The BEST exam prep for the ARRT examination!
• Free CD-ROM that offers:
  1. Two 140-question practice exams, to simulate the Quality Management Advanced Level Examination by the ARRT
  2. Printable sample documentation forms
  3. Questions for analysis and critical thinking

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Chapter 7 - Quality Control of Radiographic Equipment
• Explain the difference between single-phase, three-phase and high-frequency x-ray generators
• List and describe the three main parts of a quality control program and performance tests for radiographic equipment
• Recognize the voltage waveform of the three types of x-ray generators

Chapter 8 - Radiographic Ancillary Equipment
• List the main components of an automatic exposure control (AEC) system and how to perform quality control testing of various AEC parameters
• Explain the factors affecting screen speed and the importance of spectral matching of intensifying screens and film
• Describe the different types of image resolution, the importance of grid uniformity and alignment

Chapter 9 - Quality Control of Fluoroscopic Equipment
• List the main components of a fluoroscopic system
• Describe the performance tests for fluoroscopic equipment
• Understand how the brightness of fluoroscopic images is maintained and the various methods of monitoring fluoroscopic images

Chapter 10 - Advanced Imaging Equipment
• State the advantages and disadvantages of digital radiography versus conventional film/screen radiography
• Explain the quality control procedures for evaluating digital fluoroscopy and special procedures equipment
• Describe the various methods for obtaining bone mineral density measurements

Chapter 11 - Outcomes Assessment of Radiographic Images
• Explain the importance of repeat analysis studies in quality management
• Determine the total repeat rate of a diagnostic imaging department
• Identify artifacts on radiographic images and the corrective action required for the elimination of the appearance of image artifacts

Chapter 12 - Mammographic Quality Standards
• Explain the difference between dedicated mammography equipment and conventional equipment
• Describe the quality control responsibilities of the mammographer on a daily, weekly, quarterly, semiannual and annual basis
• Understand the difference between film/screen mammography and full-field digital mammography

Chapter 13 - Quality Control in Computed Tomography
• Identify the parameters under the technologist’s control that influence noise and spatial resolution
• Differentiate between high and low-contrast resolution
• Describe how basic quality control test for computed tomography are conducted

Chapter 14 - Quality Control for Magnetic Resonance Imaging Equipment
• Describe the various types of phantoms used in magnetic resonance (MR) imagers
• Perform quality control testing for image uniformity, spatial linearity, slice position and resolution
• Understand the concept of signal-to-noise ratio (SNR) and resonant frequency

Chapter 15 - Ultrasound Equipment Quality Assurance
• Understand the importance of quality assurance for ultrasound equipment
• Describe the various phantoms used in ultrasound quality assurance
• Identify the basic quality control tests for ultrasound and the importance of documentation of these tests

Chapter 16 - Quality Assurance in Nuclear Medicine
• Describe the principles of radiation detection and measurement
• Understand the basic principles of the gamma camera
• Describe positron emission tomography and its quality control

Appendix A - Review of Radiographic Quality
Appendix B - Agencies, Organizations and Committees in Quality Assurance
Nuclear Medicine Procedure Manual
Model 49-500 Series

The newly revised Nuclear Medicine Procedure Manual is an up-to-date, fully-referenced, authoritatively-written guide designed to provide the nuclear medicine department with essential scientific data dealing with the most efficacious way to perform nuclear medicine procedures. The editors (a nuclear medicine physician, a radiochemist and a medical physicist) have drawn on more than 1,000 articles from scientific literature to compile this comprehensive manual.

To accommodate local preferences and needs, the Nuclear Medicine Procedure Manual is designed to be easily modified. The print version comes in a three-ring binder, so that pages can be easily added or eliminated. The software version allows the user to edit the manual as they would any other word-processing document. When used together, the print version becomes a convenient “index” through which to search for and edit information on the software. For maximum versatility and cost-effectiveness, we suggest that you purchase both the print and disk formats.

Weight  2 lb (0.9 kg)
Available model(s)

- **49-500-1000** Nuclear Medicine Procedure Manual, print format only
- **49-500-1020** Apple® Macintosh®/Microsoft® Word, print and disk formats
- **49-500-2000** Apple Macintosh/Microsoft Word, disk format only
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  - Gastrointestinal System
  - Genitourinary System
  - Hematology
  - Infection
  - Pulmonary System
  - Skeletal System
  - Tumor Imaging
- **Therapeutic Procedures**
  - Endocrine System
  - Hematologic System
  - Intracavitary Therapy
  - Skeletal System
- **Radiopharmacy**
- **Appendices**
  - New appendix of CPT codes for all diagnostic and therapeutic procedures.
  - Simplifies and increases accuracy of billing