

FIFTH EDITION

# QUALITY MANAGEMENT

## IN THE IMAGING SCIENCES

JEFFREY PAPP

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QUALITY MANAGEMENT IN THE IMAGING SCIENCES,  
FIFTH EDITION

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*To my daughter, Ashley Marie, and all of my students,  
past, present, and future.*



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Quality management and its associated topics, quality assurance and quality control, are vitally important in modern diagnostic imaging departments. Government and accreditation agencies mandate procedures to ensure that equipment is functioning within accepted standards and that it is operated properly. Such procedures also must be appropriately documented. Because these responsibilities have been delegated to technologists, they need additional knowledge. The American Registry of Radiologic Technologists (ARRT) recognized this need by offering an advanced level examination in quality management in March 1997.

I have been teaching a course in quality assurance/quality management since 1983 and had never required a textbook because I could not find one single book that contained all of the necessary material. Instead, I had to reserve different books and government publications in our library for students to consult as reference sources or suggest that they consult individual chapters, research papers, and literature from various equipment manufacturers and suppliers. During discussions with other radiologic science educators, I discovered that most of them had the same problem in teaching this topic. I also had been besieged with requests from practicing technologists for study material for the Quality Management Advanced Level Examination. Previously, I could respond only by supplying a listing of several reference books.

From these many years of frustration came the impetus to write the first edition of *Quality Management in the Imaging Sciences*. The first four editions were very well received, so I am particularly pleased to offer this fifth edition, which will again fill several needs. Radiography educators find it to be a tailor-made text for instruction in quality management. It also serves as a practical reference for day-to-day consultation by practitioners responsible for implementing quality management programs in diagnostic imaging departments. Additionally, this comprehensive resource allows those practicing technologists studying for the Quality Management Advanced Level Examination to use a single reference book. The material contained in Chapters 13, 14, and 15 pertains to specialized areas of imaging (magnetic resonance imaging, sonography, and nuclear medicine) and is not covered on the Advanced Level Examination offered by the ARRT. Those readers preparing for the examination will find the material available in Evolve Resources particularly useful because it contains two sample tests based on the content outline developed by the ARRT for the Quality Management Examination.

*Quality Management in the Imaging Sciences* includes the most up-to-date information available on the quality

management aspects of darkrooms, processing, equipment and accessories, fluoroscopic and advanced imaging equipment, artifacts, repeat analysis, and silver recovery. Quality assurance organizations and their web sites are listed in Appendix B, and full-page documentation forms are available in Evolve Resources.

The following special features are included, as in the first four editions:

- Federal regulations are set in boldface type in the text and the symbol appears beside them.
- Procedures are highlighted as separate elements with step-by-step guidelines.
- Key terms are identified at the beginnings of chapters, set in boldface type, and explained within chapters.
- Learning objectives, chapter outlines, and chapter review questions (with answers) are provided as study tools.
- Key term definitions are collected in a glossary.

## NEW TO THE FIFTH EDITION

Additional updates continue to benefit the reader:

1. Revisions to the mammography chapter correspond with new digital mammographic systems that have received FDA approval.
2. The material on Evolve Resources that accompanies the text offers these features:
  - a. Two 165-question mock examinations to encourage self-testing that are particularly convenient for those readers preparing for the updated ARRT Advanced Level Examination in Quality Management
  - b. Full-size sample documentation forms that can be used “as is” or modified to meet the needs of a particular department
  - c. Student experiments and analyses of them to correspond with appropriate chapters that have been modified for digital-only departments
  - d. Questions for analysis and critical thinking that challenge the reader to prepare for real-life situations
3. Expanded material for digital imaging and quality control procedures for electronic image monitors is provided.
4. The latest changes in technology and current regulations have been updated throughout.

*Quality Management in the Imaging Sciences* continues to provide the wealth of information needed for instructors to guide students through quality management issues, for students and practitioners to prepare for the ARRT examination, and for technologists to succeed in the delivery of high-quality services.

## **INSTRUCTOR RESOURCES**

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Instructor ancillaries, including an ExamView Test Bank of over 400 questions; an electronic image collection of the images in the text; an instructor's manual of chapter

outlines, teaching tips, and teaching strategies; and a new PowerPoint lecture presentation are all available at <http://evolve.elsevier.com>.

*Jeffrey Papp, PhD, RT(R)(QM)*

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*Jeffrey Papp, PhD, RT(R)(QM)*



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