

INTRODUCTION TO
RADIOLOGIC
TECHNOLOGY



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INTRODUCTION TO **RADIOLOGIC TECHNOLOGY**

Edited by

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with fourteen contributors

with 89 illustrations

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Preface

This edition contains material for a complete introductory course in radiologic technology, providing the student with information regarding the profession as well as cognitive information to ensure safe clinical practice.

The comments and suggestions of the many technologists who adopted the first two editions of this text influenced the content and arrangement of the third edition. The authors attempted to update and modernize content, terminology, and illustrations, but the original aim of the text has not changed. A new feature of the third edition is the addition of questions and exercises at the end of each chapter. These materials are designed to emphasize the salient material covered in each chapter. They may be used as a study guide for the student, presented as a required written assignment, or form the basis for classroom discussion.

The order of the chapters remains basically the same, because educators already have the course syllabus built around this arrangement. The exceptions to this are: The History of Medicine (which has been expanded) and Radiology: An Historical Perspective. These chapters were moved into Part I of the text.

There remains a strong commitment to foster professional development of students by introducing the organizations and agencies that significantly impact their careers. Updated information on the ARRT has been included. The information on the ASRT has been retained and blended with other organizations that play a key role in the profession. Career options and position guides are again included so that an overview of the profession can be more fully appreciated.

Radiation safety in the laboratory and clinical setting continues to be an objective. This information helps ensure that the students' transition from

classroom to clinic is made in safety. NCRP Report #91 is mentioned with its recommendations. However, the recommendations of previous NCRP reports are retained since the ARRT continues to test over this material.

Some material is more fully discussed, particularly in the newer imaging modalities. Chapter 1 is completely revised, reflecting the increased emphasis on patient service as a vital part of patient care and total quality management. In the final section, the health care delivery system and the many issues pertaining to it are presented in more detail than in previous editions. However, the text remains "introductory" in nature, with the expectation that subsequent courses will delve more deeply into the technical aspects of radiography.

LaVerne Tolley Gurley
William J. Callaway

Acknowledgments

Acknowledgment of my indebtedness in preparing this revision is not complete without mentioning the generous help given by the contributors of the first and second editions. The educators who used the earlier editions and whose suggestions guided me in making the revision were also of great assistance to me. The readers who reviewed the material deserve a special commendation. Their suggestions and comments were often the determining factor in making changes in context and terminology.

I wish to acknowledge the professional organizations of radiologic technology and the people associated with them for providing an environment for the growth and development of technologists, for maintaining a high level of quality in the accreditation of education, and for certifying individuals for the profession.

A special thanks goes to Helen Ronsiek, who gave valuable assistance in typing and organizing a portion of the original manuscript.

Finally, my family, especially my two children, Charlotte Gurley Crouch and Kenneth W. Gurley, Jr., must receive the greatest credit for their encouragement and support.

L.T.G.

The enthusiastic response from radiography educators and students moved us into the third edition. I am very grateful to those who suggested improvements and also to those who indicated the book should remain much the same. Those who reviewed early drafts, especially newer material, played a key role in this new edition, and I thank them for their professional critiques. I hope we exceeded everyone's expectations with this revision.

The support and encouragement I received from my colleagues in radiography education here in Illinois and around the country is greatly appreciated. I again thank all of my students, past and present, who taught me so much and evaluated much of the material included in this text.

My portion of this book is lovingly dedicated to my best friend, who is also my wife, Karen, and to our children: Amy, Cara, David, Adam, and Kimberly.

W.J.C.

A special thanks goes to David T. Culverwell, Publisher, Mosby-Year Book, Inc., who facilitated the publishing of this work. In particular, we wish to thank the Assistant Editor, Cecilia F. Reilly, of Mosby-Year Book, Inc. who so carefully and professionally guided this project.

LaVerne Tolley Gurley

William J. Callaway

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BECOMING A RADIOLOGIC TECHNOLOGIST



Introduction to Quality Customer Service

William J. Callaway

OBJECTIVES

Upon completion of this chapter, you should be able to:

- ◇ Explain the importance of having a thorough understanding of the technical aspects of radiologic technology.
- ◇ Name the sources of information that most patients use when choosing a hospital.
- ◇ List the inside and outside customers served by the health care facility.
- ◇ Describe quality care from the patient's perspective.
- ◇ List high-tech and high-touch aspects of health care.
- ◇ Explain what is meant by a "moment of truth."
- ◇ Outline a customer service cycle for a radiologic examination.
- ◇ List ways to enhance telephone conversations.
- ◇ Define *empathy*.
- ◇ Be able to use the conflict resolution model in customer service and high-stress situations.

Welcome to the profession of radiologic technology! You are about to embark on a series of educational experiences designed to help you work in this intriguing and challenging medical specialty. The purpose of this book is to introduce you to the many facets of radiologic technology and the educational process you are now beginning.

Radiologic technology is first and foremost a people-oriented business. It carries with it special opportunities. Patients have entrusted their health to us and need to feel that they are in the best of hands. It is up to you, as a new health care professional, to dedicate yourself to providing the highest quality of care and service to your patients (Fig. 1-1).

OVERVIEW

To provide quality service, a thorough understanding of your chosen field is necessary. You must have a command of the technical aspects of radiologic technology so you are free to concentrate on the health care customer, whom we traditionally call the *patient*. This book will assist you on your journey. Because education at this level is a complicated task, the majority of the chapters in Part I offer help in understanding the learning process itself. In this section, noted educators share their ideas and suggestions on how to get started with the study habits and personal adjustments required of the new student. Their expertise, based on contact with hundreds of radiography students, provides just the type of information required to establish effective methods of study. Careful attention to this material will help set the stage for all that follows throughout your education in radiologic technology.

The remaining chapters in Part I present the history and future of health care in general and of radiology in particular. Although volumes have been written on the history of medicine, Chapter 5 is a concise treatment of this subject. This history of radiology is particularly interesting and exciting, marked by steady progress through the years.

The day-to-day practice of radiologic technology is complex. Many new and interesting terms, examinations, and relationships must be learned. Chapters 8 through 11 in Part II introduce you to terminology, equipment, examinations, and radiograph production. These topics are encountered immediately upon entering the clinical phase of the educational program. These subjects are presented here because they begin to give you a working knowledge of what is happening in the radiology department. Your early clinical rotations will mean more to you if you already have some grasp of the imaging environment.

Part II also includes discussions about medical ethics and the legal