Book Review

Physical Principles of Medical Imaging. 2nd ed.

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Madison, Wis: Medical Physics Publishing, 1995. ISBN 0-944838-54-5. Cloth, $66.00 + shipping; pp 656; 412 figures; tables.

When I was asked to review this textbook, I was less than excited. Of all the radiology texts out there, why a physics text? I then decided to use this as an opportunity to begin to learn medical imaging physics, which, eventually, all of us residents need to have some knowledge of.

This book is written primarily for radiology residents. It is also useful as a reference text for radiologists in practice. Its objectives are to enable the reader to understand the basics of image formation and to use this understanding to optimize imaging factors and procedures to enhance image quality.

The book contains 42 chapters that cover not only the basic principles of generating x rays but also physics of ultrasound, magnetic resonance imaging, and nuclear medicine. It also contains important topics, such as patient and personnel exposure, statistics, quality control, and digital imaging systems.

I think the text is very well organized. Each chapter begins with an introduction and overview, which summarizes the important points and provides a framework for what will be covered in the chapter. Each chapter is less than 20 pages and, therefore, keeps the reader focused. Each chapter is written clearly and succinctly and assumes no previous knowledge of physics.

The illustrations and tables are well organized, and there are plenty of them to demonstrate the various concepts covered within the chapters. Each illustration has a caption that summarizes the illustration.

One problem with the book is there are no practice problems. It is something that is very important, especially to residents, since the written board examination frequently has a substantial number of problem-solving questions. When compared with a similar text, it is much more readable and easier to understand. The cost of the book is $66.00, and when compared with other books, it is very reasonable.

In summary, this physics text is a good first physics book for the second- or the third-year resident, who has a sincere desire to learn the principles of medical imaging. It can be supplemented with problems and a quick review at the time when studying for written radiology boards.

Reviewed by Jacque Wettlaufer, MD