

JNMT Bookshelf

NUCLEAR MEDICINE TECHNOLOGY AND TECHNIQUES

Donald L. Bernier, James K. Langan, and L. David Wells, eds, C.V. Mosby Co., 1981, 538 pp, \$34.50.

The editors, benefitting from the expertise of 36 contributors in the basic sciences and clinical nuclear medicine, have compiled an excellent comprehensive textbook that is enhanced by high quality anatomic illustrations, radiographs, scans, and tables.

The basic sciences section skillfully guides the student through the complexities of mathematics, statistics, and nuclear medicine physics into basic instrumentation and quality assurance. Basic laboratory science, which reviews the chemistry pertinent for a nuclear medicine technologist, further prepares the student for the principles and application of radiochemistry and radiopharmacology. Concise, informative chapters on computer sciences and radiation safety and protection round out the section. With an innovative approach, the clinical nuclear medicine section utilizes physician-technologist teams coauthoring chapters dealing with the major organ systems. Applicable anatomy, pathophysiology, and in vivo and in vitro techniques are covered in remarkable detail. Special attention is devoted to practical considerations in the clinical environment in those chapters covering patient care and pediatric imaging. Both the theoretical concepts and the practical aspects of radioimmunoassay are well presented.

Although some of the clinical chapters, most notably the one devoted to the endocrine system, appear to be threateningly detailed for the entry-level technologist, one cannot deny the overall excellence of the text. Not only have the editors succeeded in offering an outstanding and refreshing alternative to the student, but they have simultaneously supplied a much needed reference aid for the practicing technologist who must remain current in our rapidly expanding field.

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MOSBY'S MANUAL OF NUCLEAR MEDICINE PROCEDURES

D. Bruce Sodee and Paul J. Early, C.V. Mosby Co., 600 pp., \$35.95.

As the title infers, this text is truly a manual of nuclear medicine procedures.

The book is divided into two parts. Part one, consisting of approximately one-third of the book, discusses nuclear science. With frequent references to an earlier edition, this section covers most facets of the subject from physics to waste disposal of radionuclides used by nuclear medicine departments. It describes in some detail the operation of the various instruments we use and methods of quality control for them.

Part two gives step-by-step procedures for almost all studies done by nuclear medicine departments including both in vitro and imaging. It is interesting to note that all in vitro studies are described from pipetting to actual counting and all normal values are given in the text. Imaging studies are described in detail and examples are given of normal and abnormal studies. The new computer studies are fully presented including suggested parameters.

The book appears to be directed toward a student/instructor situation and I highly recommend it for this purpose.

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NUCLEAR MEDICINE TECHNOLOGY EXAMINATOR REVIEW

D.L. Gryniewicz, S. Spies, and D.R. Martin, Arco Publishing, Inc., New York, 1981, 155 pp, \$12.00.

I have long held the opinion that examination review books were of little use to the prospective examinee other than to familiarize him with multiple choice questions. After reading this book I see very little reason to change my opinion.

One wonders which certifying body the authors chose to disregard in the introductory statement, "At the time of this writing there are at least two well-recognized certification examinations for technologists in the field of nuclear medicine." At the time the introduction was written (July 1980) the NMTCB, ARRT, and Board of Registry, ASCP, all well-recognized certifying bodies, were in existence.

In constructing the questions, the authors failed to follow the basic principles of multiple-choice question development. I identified the following shortcomings:

1. The cognitive level of the majority of questions is simple recall or comprehension.
2. In several questions, a clue to the correct answer

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is given in the stem. An example is question 171 of the chapter on instrumentation:

"The conversion of analog signals to digital signals is the function of the

- A. scintillation camera
- B. analog-digital converter
- C. digital transmitter
- D. analog exchanger"

The correct answer (B) and the stem contain the words "analog" and "digital" and one of the nouns "conversion" or "converter."

3. Many questions offer "none of the above" as an alternative. Use of this term as a foil, in several instances, is frowned upon by test construction experts.
4. In the chapter on radiopharmacy, questions 61, 62, and 63 have stems that are not properly constructed and answers that are incorrectly labeled, i.e., "The decay constant value for ^{99m}Tc is
 - A. 1.15×10^{-1} dps
 - B. 4.2×10^1 dps
 - C. 3.2×10^{-5} dps
 - D. 1.5×10^4 dps"

The definition of lambda, the decay constant, is $\lambda = .693/T_{1/2}$. If the $T_{1/2}$ is expressed in sec (6 hr \times 60 min \times 60 sec), the solution is $.693/21600 = 3.2 \times 10^{-5} \text{ s}^{-1}$. The term "dps" is erroneous because the disintegrations would vary depending on the quality of radionuclide present (10 mCi would have more dps than 1 mCi). The stem should read, "The decay constant value for ^{99m}Tc expressed in seconds is."

The authors state, "there is a current trend towards formalization of certification procedures." This is true. Since its inception, the Nuclear Medicine Technology Certification Board has publicized the fact that its examination is task oriented and based on a comprehensive task analysis. More recently (ARRT Newsletter, April 1981) the American Registry of Radiologic Technologists announced completion of its task inventory and stated that it was being rated by a random sample of nuclear medicine technologists. This effort is directed towards improving the job (task)-relatedness of the examination. Because of these trends, many questions are inappropriate. I see no reason to include a chapter, albeit short, on placental localization. The use of such radiopharmaceuticals as Au-198 colloid, Hg-203 chlormerodrin and Bi-206 citrate is a thing of the past. The same can be said for rectilinear scanners, which have or should have disappeared from the nuclear medicine scene. With the proliferation of new technologies, the aforementioned subjects are of interest only from an historic point of view, have no practicality in current nuclear medicine practice, and definitely do not belong in a book of this kind. Their inclusion suggests to the reader, the neophyte nuclear medicine technologist, that this material may be included in the certification examination.

In my experience I have found that nuclear medicine technology students become increasingly apprehensive as examination time approaches. They will search for anything that will help to relieve their anxieties. I cannot recommend this publication.

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PRINCIPLES OF NONINVASIVE CARDIAC IMAGING: ECHOCARDIOGRAPHY AND NUCLEAR CARDIOLOGY

Dean T. Mason, Anthony N. Demaria, and Daniel S. Berman,
Le Jacq Publishing Inc., 1980, 279 pp.

This book is an attempt to examine two imaging modalities side by side. Comparative analyses of value, indications, and limitations, and emphasis on salient principles are stressed.

The first part of the book (about two-thirds of it) deals with echocardiography in five major sections: physical properties and examining techniques; assessment of cardiac performance; disorders of cardiac valves and great vessels; abnormalities of cardiac chambers and related disorders; and special topics.

The second part of the book deals with scintigraphic cardiology and is also in five sections: cold spot myocardial perfusion imaging; hot spot myocardial perfusion imaging; gated equilibrium cardiac blood pool imaging; first transit cardiocirculatory blood pool imaging; and special topics.

In two separate places in the preface emphatic statements are made that the two modalities are not in competition, but are complementary. The authors' emphasis on noncompetitiveness actually seems to underline the competitive aspects of echocardiography versus nuclear cardiology versus cardiac catheterization. This produces such convoluted statements as: "Certain echocardiographic and cardioscintigraphic imaging procedures are capable of producing more accurate information than invasive methodology, whereas others of these non-invasive approaches serve as useful screening tests for . . . the more precise assessment by cardiac catheterization."

There is a little something for everyone here. Non-invasive methods are more accurate, and catheterization is more precise!

The reproductions of most of the echocardiograms lack contrast, the printing, apparently, not being what it should have been. The reproductions throughout the rest of the book are of good quality.

There are nice bibliographies for each of the two major sections of the book, and in general the subject matter is handled with excellent organization; concepts are succinctly stated.

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