

# JNMT Bookshelf

## HANDLING RADIOACTIVITY

Donald C. Stewart, John Wiley & Sons, 1981, 282 pp, \$35.00

Although this text is not specifically geared toward the medical applications of radioactive materials, several sections of it are of interest to persons responsible for radiation safety. These sections—concerning radiation protection standards, operations, laboratory design, transportation, and waste disposal—contain some very pertinent remarks regarding the specifications of hoods, air filtration devices, and monitoring tools. I particularly enjoyed the background information on the evolution of the various regulatory and advisory groups (ICRU, ICRP, NCRP, BIER, IAEA, NRC, ERDA, DOE, DOT, etc.) and their relationship to one another.

The author's treatment of the derivation of protection standards and dosimetry units is thoroughly understandable. The book is almost totally lacking in mathematical supporting data although other references are cited. Instead, data are presented in a logical, practical manner, allowing one to learn without drowning in a sea of formulae.

Approximately 60% of the book is devoted to design and operation of laboratories using much greater quantities and varieties of radioisotopes than found in nuclear medicine. The basic principles apply to us as well, of course, and a hospital or research facility planning construction would do well to consider these concepts. In addition, familiarity with the monumental problems of the nuclear industry at large will help us to knowledgeably differentiate the relatively innocuous concerns of nuclear medicine.

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## LEGAL MEDICINE WITH SPECIAL REFERENCE TO DIAGNOSTIC IMAGING

A. Everette James, Urban and Schwarzenberg, 1980, 387 pp, \$32.50.

This book takes the gobbledygook out of the legal system and substitutes plain language. Our legal system has many parts and layers, and a book of this kind must deal in principles instead of specifics. As the author explains, what may be true in Illinois, may not be true in other states. Topics explained include the legal system, experiences of being a witness, responsibilities, professional corporations, malpractice insurance, and regulatory bodies (and their influence).

The target audience of this book is the practicing

physician, particularly the radiologist. Many of the chapters would not be applicable to the technologist; however, the discussions on the legal system, need for documentation, and on being a witness should be of interest to all health care professionals. The chapter on nuclear medicine clearly and concisely reminds the reader of NRC regulations and the necessity of following them.

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## FUNDAMENTALS OF RADIATION DOSIMETRY

J.R. Greening, Adam Hilger Ltd, Bristol, UK, 1981, 160 pp, \$27.00.

Radiation dosimetry is presented in this text presupposing that the reader has a background in physics. Therefore the word "Fundamentals" in the title is a relative term. Many graphs, formulae, and tables punctuate the explanation and, in some cases, are the explanations themselves. Relationships between quantities and units, interactions of ionizing radiation with matter, measurement of exposure and direct dose are among the topics discussed.

The book can be effectively used as a reference for senior nuclear medicine technologists, residents, and nuclear medicine scientists. I do not recommend it as a text for a nuclear technology training program because of the comparatively sophisticated presentation of the material.

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## SCINTILLATION CAMERA ACCEPTANCE TESTING AND PERFORMANCE EVALUATION

American Association of Physicists in Medicine, American Institute of Physics, 1980, \$3.00.

This 23-page booklet documents the various aspects of commissioning a new scintillation camera prior to clinical use. It is the result of the deliberations of the AAPM Nuclear Medicine Committee under the chairmanship of Audrey V. Wegst.

The topics covered range from inspection on delivery through measurement of temporal resolution, uniformity, spatial resolution, energy resolution, multiwindow spatial registration, and point source sensitivity to collimator testing and determination of shielding leakage.

As the introduction states the booklet's primary ob-

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jective is to document the important steps in acceptance testing. Although some mention is made of ongoing performance evaluation or quality control testing, if any criticism is valid, it is that insufficient emphasis has been placed on this activity. Nomenclature to indicate which tests should be performed regularly and with what frequency would have been a great aid.

Scintillation camera manufacturers have recently produced their own document (1,2) under the auspices of the National Electrical Manufacturer's Association (NEMA) to establish a common base for camera-performance testing and specification of performance parameters. This is most desirable and long overdue. We can hopefully now compare apples with apples when contemplating purchase of a scintillation camera. The AAPM brochure correctly states that the NEMA testing protocols may be difficult to perform in the field. On the other hand, it should be possible for any laboratory to carry out the AAPM protocols and obtain numerical results which, to a first approximation, can be compared to the manufacturer's NEMA specifications.

Unfortunately, some parameters cannot be determined in a numerical sense using the AAPM methods. This is particularly true of the determinations of uniformity and here the committee uses the term "acceptable" without any clear definition of what is acceptable and what is not.

The committee is to be commended for producing a well-organized brochure containing protocols that are easy to follow. It, together with the NEMA document, should have pride of place on every nuclear medicine department bookshelf. Every department that takes pride in its results is strongly advised to use this document as a guide in establishing, or modifying an already established, quality control program. It is available from the Executive Director, American Association of Physicists in Medicine, American Institute of Physics, 345 E. 45th Street, New York, NY 10017.

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#### References

1. Performance Measurements of Scintillation Cameras, NU 1-1980, National Electrical Manufacturers Association, Washington, DC, 1980.
2. Muehllehner G, Wake RH, Sano R. Standards for Performance Measurements in Scintillation Cameras. *J Nucl Med* 1981; 22: 72-77.

#### CLINICAL RADIOIMMUNOASSAY-STATE-OF-THE-ART

Jeffrey C. Travis, editor, Anaheim, Radioassay-Ligand Assay Publishers, 1980, 160 pp, \$39.00.

This is a compilation of a series of newsletters for physicians; it reads somewhat like a *PDR* of radioimmunoassay. I agree with the author's claim that his book is an invaluable reference for physicians and technologists. The collection of past newsletters has, on the whole, been updated with new trends on various pro-

cedures as they existed at the time the book was published, but as with any text on medical data, new updates are needed in some areas. For example, I feel that the newsletter on hepatitis-associated antigen needs more written on the HAVAB and B Core procedures and uses for the diagnostician and technologist. I also would like to see a chapter devoted to RIA theory in the beginning of the book. This addition would help the student technologist learn the basic theory of RIA plus give a review to physicians and technologists. An index would also be another item that would be useful in this text. Although the Table of Contents is arranged alphabetically, some tests are grouped into one heading, (i.e., CEA is in the newsletter on Tumor Markers) making easy access difficult.

As with any text, this compilation is not without some flaws, as I've mentioned above, but on the whole, I would wholeheartedly recommend this text as a definite asset to a department's *in vitro* library.

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#### NUCLEAR MEDICINE TECHNOLOGY EXAMINATION REVIEW

G.D. Frey and C.J. Klobukowski, Medical Examination Publishing Co., 366 pp, \$14.50, second edition.

This paperback question-and-answer book is directed toward nuclear medicine technologists and is intended to serve as a self-assessment of their knowledge of the field. New techniques and instrumentation are evident in the 1,425 questions, lessening the probability of the book becoming quickly obsolete.

The book contains both multiple-choice and true-false questions, organized into 24 sections, which deal with almost every aspect of nuclear medicine technology. A section on Mathematics and Quality Control has been added to this second edition. The authors claim to have expanded the Radioimmunoassay section; however, these questions are extremely general and lack any mention of RIA applications. For example, approximately 15 questions are devoted to the Schilling's test; whereas measurement of serum vitamin B<sub>12</sub> and folate are not mentioned. Another obvious omission is general questions dealing with computers. The rectilinear scanner, which is rapidly becoming outdated, is adequately covered but little if any reference is given to computers.

Each question in the book is referenced to a specific, commonly available textbook and to the page number within that reference. A useful addition to this edition is the short explanation of each answer in the answer key.

Inclusion of images and graphs would have made this a more valuable self-assessment tool.

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