

BEYOND NORMALITY: THE PREDICTIVE VALUE AND EFFICIENCY OF MEDICAL DIAGNOSES. R. S. Galen and S. R. Gambino. New York, Wiley, 1975, 237 pp, \$14.95.

This book presents a method for evaluating testing procedures where the purpose of the test is to classify individuals as either having or not having specific diseases. The first section, consisting of 15 chapters, introduces the concepts of sensitivity, specificity, efficiency, and predictive value. Numerous examples are given so that these terms, as well as the theory of the predictive value model, become clear. The next section is composed of nine appendices which deal with some further statistical and epidemiologic concepts associated with the development of the predictive value model. The third and final section of the book contains tables which give the efficiency and predictive value of various test procedures, given the specificity and sensitivity at selected prevalences.

The book, besides being well written and easy to read, is also very interesting. The authors' enthusiasm for the material is evident. The many examples given throughout the first section not only help the reader to understand the terminology, but also, because of the topics chosen, hold one's interest and make one aware of common errors in previous evaluations of test procedures. We become convinced of the difficulty of classifying individuals as having or not having a disease and, also, of the inaccuracy of judging a test procedure solely by its sensitivity and specificity while ignoring the prevalence of the disease.

Beyond Normality could serve as one of the texts for a course in biostatistics or an epidemiologic program. It would also be beneficial to all persons who use laboratory tests to determine the presence or absence of disease. In this regard, it would be the ideal text for medical students.

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RADIOIMMUNOASSAY. L. M. Freeman and D. M. Blaufox, eds. New York, Grune & Stratton, 1975, 162 pp, \$14.50.

Radioimmunoassay, reprinted from *Seminars in Nuclear Medicine*, serves nicely as an introductory primer. The contents touch on most theoretical and practical considerations of radioassay, alerting the reader to their existence, and appropriate references are cited, facilitating convenient pursuit of specific topics.

Approximately one-third of the text is devoted to basic principles and general considerations. Whereas most of the essentials of radioassay are very well covered in these four chapters, some lack of coordination among the various authors is evident, resulting in both omissions and repetitions. Discussions of the principle of radioisotope dilution and the differences between and applicability of equilibrium and nonequilibrium techniques would have been useful. The important topic of radioassay quality control and reliability is neither comprehensively nor coherently covered; each of the first four chapters (and many subsequent ones) touches upon this subject, but a section specifically delineating methods of assay accuracy, precision, reproducibility, sensi-

tivity, and specificity would have been a welcome addition. The section on curve fitting is particularly sketchy, and this topic is given short shrift in other sections.

The remaining chapters are devoted to specific radioassays; their contents range from technical discussions, as with insulin or renin, to clinical reviews, as with the hormones of gonadal function. Each of these sections is excellent, but the chapter on digoxin is exemplary in presenting the three features of greatest interest to the radioassayist: (A) characteristics of the specific assay; (B) evaluation of available commercial kits; and (C) correlations of results with the relevant physiology and pathophysiology.

Notwithstanding the above shortcomings, *Radioimmunoassay* is an excellent introductory text and a useful addition to the nuclear medicine library.

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THE RENAL UPTAKE OF RADIOACTIVE MERCURY (¹⁹⁷HgCl₂). C. Raynaud, ed. Springfield, Ill., C. C. Thomas, 1976, 221 pp, \$22.75.

This book, edited by C. Raynaud, has 41 contributors with a preface by Henry N. Wagner, Jr., and a foreword by Pierre Royer. The text provides an excellent and laboriously precise description of the techniques and experience with the renal uptake of ¹⁹⁷HgCl₂, studied as a renal function test for over 10 years. The evolution of the technique, originally utilizing external probe counting, later quantitative scintigraphy with the rectilinear scanner, and finally utilizing the scintillation camera with computer assistance, is described in great detail. Correction for liver, spleen, and intestinal activity and correction for renal depth is employed conscientiously and consistently. The investigators and authors of this work must be congratulated for their precision and their patience in evaluating this procedure.

Highlights include documentation that bilateral renal ¹⁹⁷HgCl₂ uptake is quite symmetric and that the uptake range with an acceptable standard deviation in patients with normal renal function compares well with conventional renal function tests. In the authors' hands the procedure quantitates residual renal function in patients with hydro-nephrosis or renal lithiasis more sensitively than the conventional methods of intravenous contrast urography, biochemical renal function tests, and split function clearances. In addition, renal uptake of ¹⁹⁷HgCl₂ shows renal hyperplasia better than the clearance tests. Each laboratory employing the procedure would have to work out their own normal uptake ranges due to variations in instrumentation, patient population, and other possible variants quite similar to the quantitation of thyroid function with radioactive iodine.

Unfortunately, in the United States, ¹⁹⁷Hg-mercury chloride has not been approved for routine usage by the FDA. Another drawback is that the procedure may be considered relatively time-consuming, especially when programmed computer assistance is not available. This would be particularly disadvantageous in cases where an immediate determination of renal function is necessary.