Book reviews

Modern epidemiology, Kenneth J Rothman (Univ. of Massachusetts) (Pp 358; £33·90) Boston and Toronto: Little, Brown and Co., 1986.

From a European perspective, there are two themes in American epidemiology which have become influential in the last two decades. One of these is clinical epidemiology, represented by the recent book of that name by Sackett, Haynes, and Tugwell, and the other is a disciplined analytical approach which seeks to develop epidemiological methodology as a mature scientific discipline in its own right. This trend now has its clearest proponent in this book by Ken Rothman. It is a forthright approach, as the title suggests that other forms of epidemiology are obsolescent. There is much truth in this assertion.

The book is most suitable for readers who are familiar with basic epidemiology. Rothman's reader is challenged to understand the origin of biases and limitations of study design, and to understand analytical methods almost from first principles. For many British epidemiologists, whose basic training is often epitomised by the approach that "if it is an important result it will be obvious in a very simple table", and the assumption that one must ask a statistician about any quantitative question, this book will come as both a challenge and a revelation. The approach is mathematical in that epidemiology is presented as a quantitative science, although the mathematics can be handled with diligence by anyone who has managed a basic statistics course. Readers who are uncomfortable even with this level of numeracy should not be deterred, because many of the most important sections are those which deal with analytical issues qualitatively using a well reasoned, logical approach. I would particularly recommend the first section emphasising the importance of modern epidemiological methods in contemporary medicine, and the sections on causal inference and the objectives and strategies of epidemiological studies. Beyond these, there is a useful chapter on statistics in epidemiological analysis, which takes the view that to do epidemiology properly one must understand the role and the limitations of statistics and use statistical methods within the overall epidemiological strategy, rather than the other way round. The sections on matching and on multivariate analysis show the same approach, demonstrating how much clarity can be brought to the topic by a careful understanding of the epidemiological issues involved in these techniques.

The book should perhaps be entitled "Modern epidemiological analysis". Although there is much on the design of epidemiological studies in terms of the selection of subjects, the book does not deal extensively with issues such as the quality of data, questionnaire design, or the practical aspects of running epidemiological studies, nor does it go into wider aspects, such as studies of screening, cost benefit analyses, audit studies, or descriptive epidemiology. If the book has a weakness, it is in the relationship of the precision provided by the analytical methods to the specificity of the hypotheses under test and the quality of the available data. While we have much to learn from the American approach, it is perhaps overly concerned with issues such as the optimum calculation of the variance of the relative risk in a situation where the quality of the raw data means that the degree of precision in the analysis is rather irrelevant. But the answer is to improve the quality of the data rather than ignore the existence of better analytical methods.

I would recommend this text for readers who wish to develop their understanding of epidemiology. It deserves both to be read and to be used as a reference work on analytical methods.

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Methods in observational epidemiology Monographs in Epidemiology and Biostatistics 10. JL Kelsey, WD Thompson, AS Evans. (Pp 366+x; figs; £30) New York: Oxford University Press, 1986.

This book's declared aim is to guide those wishing to carry out or interpret observational epidemiological studies of disease aetiology. It begins with two chapters which give an excellent overview of the main types of studies in this field and of the main concepts involved in quantifying and interpreting associations between risk factors and diseases. The third chapter describes and criticises routine United States sources of numerator data for descriptive studies of mortality and morbidity. Then comes the core of the book, which deals in turn with the methodology of each of the different types of analytical studies of individuals—cohort, case-control, and cross-sectional—and then, much more briefly, with correlative studies of groups (here called ecological studies). Other chapters deal with the investigation of epidemics and with sampling and data collection procedures which are pertinent to the planning of all types of analytical studies. Each chapter ends with a set of exercises.

The book deals much more adequately with analytical studies than with descriptive ones. It is