

development in epidemiology, community medicine or public health.

This book proposes a scheme for the critical appraisal of epidemiological studies and trials. This approach starts by describing the methods and results. Then, it considers three possible non-causal explanations: "observation" bias, confounding and chance. This system forces the investigator or the reader to think about the quality of the data and design and to appraise critically whether a truly causal explanation can be accepted. The aim is to build a logical system of critical appraisal, to allow readers to evaluate studies and to carry out their own studies more effectively. This book emphasises the central importance of causation and unifies the often different approaches used in epidemiology, clinical trials, and evidence-based medicine.

After introducing the concept of causation (chapter 1), the author moves to the types of design used to support a causal relationship (chapter 2) and to issues in the presentation of results that are relevant for causal inference (chapter 3). The central role of measures for attributable proportions and attributable benefits are among the great strengths of this chapter. Chapter 4 deals with the selection of subjects. Then the author devotes three chapters to potential non-causal explanations of findings: observation bias (chapter 5), confounding (chapter 6), and random error (chapter 7). Chapter 8 introduces meta-analysis. Chapter 9, "the diagnosis of causation", addresses the issues of internal and external validity providing a comprehensive 20-item check-list to appraise the validity of a study systematically. The second section of this chapter reviews the hierarchy of designs and criticises some usual concepts of evidence-based

medicine. The six final chapters are centred each on an example of how to appraise a study critically. In these chapters, sections of the original papers are reproduced, the 20-item check-list is thoroughly applied to each example and, very interestingly, a summary of further developments on the topic after the publication of the selected paper is provided.

The style of the book deserves praise for its clarity, applicability, and interest. Excellent examples have been selected representing a very good source for teaching material. The book includes self-test questions (five to 12 questions at the end of each chapter), with the solutions explained at the end. Statistical methods are presented clearly without complex mathematics. More detailed explanations and worked examples are summarised in the appendix.

A major limitation is the omission of recent developments in confounding (ie counterfactuals, causal graphs, colliders). One of the worked examples (obesity confounding the association between exercise and myocardial infarction) missed the fact that obesity may also be an intermediate step in the causal chain. Only later, after more than 40 pages about confounding (page 204), the author explains in another context that a factor in the causal pathway is not a confounder. The author acknowledges that "in much current literature, the main result will come from (...) a multivariate analysis" (page 326), but multivariate methods are dealt with very briefly. The concept of hazard ratio is practically absent. In contrast, some recent books have been successful in handling multivariate methods in a friendly manner (Katz, *Multivariate analysis*, 2nd ed, Cambridge University Press). After many pages devoted to trials,

no mention of equivalence (non-inferiority) trials is made, which would have been very useful for some of the examples presented. The author uses the term "observation bias" instead of "information bias". Unifying terminology in epidemiology is important. The Dictionary of Epidemiology admits observational bias, but not "observation bias". "Information bias" would perhaps have been better.

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## CORRECTIONS

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The order of the authors of the paper by Chaix *et al* in the January issue of JECH were published incorrectly (B Chaix, M Lindström, J Merlo, and M Rosvall. Neighbourhood social interactions and risk of acute myocardial infarction. *J Epidemiol Community Health* 2008;**62**:62–8). J Merlo is in fact the last author of the paper. The publisher apologises for this mistake.

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In the December issue of JECH there were some errors in the published paper by Cohen *et al* (Cohen J, Bilsen J, Fischer S, *et al*. End-of-life decision-making in Belgium, Denmark, Sweden and Switzerland: does place of death make a difference? *J Epidemiol Community Health* 2007;**61**:1062–8). A corrected version of the manuscript has been posted online as a data supplement to the online article. This can be found at: <http://jech.bmj.com/cgi/data/61/12/1062/DC1/1>.