

## Epidemiology : study design and data analysis

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### Abstrak

Highly praised for its broad, practical coverage, the second edition of this popular text incorporated the major statistical models and issues relevant to epidemiological studies. *Epidemiology: Study Design and Data Analysis, Third Edition* continues to focus on the quantitative aspects of epidemiological research. Updated and expanded, this edition shows students how statistical principles and techniques can help solve epidemiological problems. New to the Third Edition New chapter on risk scores and clinical decision rules New chapter on computer-intensive methods, including the bootstrap, permutation tests, and missing value imputation New sections on binomial regression models, competing risk, information criteria, propensity scoring, and splines Many more exercises and examples using both Stata and SAS More than 60 new figures After introducing study design and reviewing all the standard methods, this self-contained book takes students through analytical methods for both general and specific epidemiological study designs, including cohort, case-control, and intervention studies. In addition to classical methods, it now covers modern methods that exploit the enormous power of contemporary computers. The book also addresses the problem of determining the appropriate size for a study, discusses statistical modeling in epidemiology, covers methods for comparing and summarizing the evidence from several studies, and explains how to use statistical models in risk forecasting and assessing new biomarkers. The author illustrates the techniques with numerous real-world examples and interprets results in a practical way. He also includes an extensive list of references for further reading along with exercises to reinforce understanding. Web Resource A wealth of supporting material can be downloaded from the book's CRC Press web page, including: Real-life data sets used in the text SAS and Stata programs used for examples in the text SAS and Stata programs for special techniques covered Sample size spreadsheet "--

"Preface This book is about the quantitative aspects of epidemiological research. I have written it with two audiences in mind: the researcher who wishes to understand how statistical principles and techniques may be used to solve epidemiological problems and the applied statistician who wishes to find out how to apply her or his subject in this field. A practical approach is used; although a complete set of formulae are included where hand calculation is viable, mathematical proofs are omitted and statistical nicety has largely been avoided. The techniques described are illustrated by example, and results of the applications of the techniques are interpreted in a practical way. Sometimes hypothetical datasets have been constructed to produce clear examples of epidemiological concepts and methodology. However, the majority of the data used in examples, and exercises, are taken from real epidemiological investigations, drawn from past publications or my own collaborative research. Several substantial datasets are either listed within the book or, more often, made available on book's web site for the reader to explore using her or his own computer software. SAS and Stata programs for most of the examples, where appropriate, are also provided on this web site. Finally, an extensive list of references is included for further reading. I have assumed that the reader has some basic knowledge of statistics, such as might be obtained from a medical degree course, or a first-year course in statistics as part of a science degree. Even so, this book is self-contained in that all the

standard methods necessary to the rest of the book are reviewed in Chapter 2. From this base, the text goes through analytical methods for general and specific epidemiological study designs