Medical Uses of Statistics

John C. Bailar, David C. Hoaglin ISBN: 978-0-470-43953-1 Paperback 491 pages June 2009 CDN \$95.95 http://ca.wiley.com/WileyCDA/WileyTitle/productCd-0470439521.html

A new edition of the classic guide to the use of statistics in medicine, featuring examples from recent articles in the New England Journal of Medicine

Medical Uses of Statistics has served as one of the most influential works on the subject for physicians, physicians-in-training, and a myriad of healthcare experts who need a clear idea of the proper application of statistical techniques in clinical studies as well as the implications of their interpretation for clinical practice. This Third Edition maintains the focus on the critical ideas, rather than the mechanics, to give practitioners and students the resources they need to understand the statistical methods they encounter in modern medical literature.

Bringing together contributions from more than two dozen distinguished statisticians and medical doctors, this volume stresses the underlying concepts in areas such as randomized trials, survival analysis, genetics, linear regression, meta-analysis, and risk analysis. The Third Edition includes:

- Numerous examples based on studies taken directly from the pages of the *New England Journal of Medicine*
- Two added chapters on statistics in genetics
- Two new chapters on the application of statistical methods to studies in epidemiology
- New chapters on analyses of randomized trials, linear regression, categorical data analysis, meta-analysis, subgroup analyses, and risk analysis
- Updated chapters on statistical thinking, crossover designs, p-values, survival analysis, and reporting research results
- A focus on helping readers to critically interpret published results of clinical research

Medical Uses of Statistics, Third Edition is a valuable resource for researchers and physicians working in any health-related field. It is also an excellent supplemental book for courses on medicine, biostatistics, and clinical research at the upper-undergraduate and graduate levels.

Preface. Preface to the Second Edition. Preface to the First Edition. Acknowledgments. Origins of Chapters.

Introduction.

SECTION I: BROAD CONCEPTS AND ANALYTIC TECHNIQUES.

Chapter 1 Statistical Concepts Fundamental to Investigations (Lincoln E. Moses). Chapter 2 Some Uses of Statistical Thinking (John C. Bailar III). Chapter 3 Use of Statistical Analysis in the New England Journal of Medicine (Shilpi Agarwal, Graham A. Colditz, and John D. Emerson).

SECTION II: DESIGN.

Chapter 4 Randomized Trials and Other Parallel Comparisons of Treatment (Nancy E. Mayo).

Chapter 5 Crossover and Self-Controlled Designs in Clinical Research (John C. Bailar III, Thomas A. Louis, Philip W. Lavori, and Marcia Polansky).

Chapter 6 The Series of Consecutive Cases as a Device for Assessing Outcomes of Interventions (Lincoln E. Moses).

Chapter 7 Biostatistics in Epidemiology: Design and Basic Analysis (Mark S. Goldberg).

SECTION III: ANALYSIS.

Chapter 8 P-values (James H. Ware, Frederick Mosteller, Fernando Delgado, Christl Donnelly, and Joseph A. Ingelfinger).

Chapter 9 Understanding Analyses of Randomized Trials (Nancy E. Mayo).

Chapter 10 Linear Regression in Medical Research (Paul J. Rathouz and Amita Rastogi).

Chapter 11 Statistical Analysis of Survival Data (Stephen W. Lagakos).

Chapter 12 Analysis of Categorical Data in Medical Studies (Paul S. Albert).

Chapter 13 Analyzing Data from Ordered Categories (Lincoln E. Moses, John D. Emerson, and Hossein Hosseini).

SECTION IV: COMMUNICATING RESULTS.

Chapter 14 Guidelines for Statistical Reporting in Articles for Medical Journals (John C. Bailar III and Frederick Mosteller).

Chapter 15 Reporting of Subgroup Analyses in Clinical Trials (Rui Wang, Stephen W. Lagakos, James H. Ware, David J. Hunter, and Jeffrey M. Drazen).

Chapter 16 Writing about Numbers (Frederick Mosteller, Margaret Perkins, and Stephen Morrissey).

SECTION V: SPECIALIZED METHODS.

Chapter 17 Combining Results from Independent Studies: Systematic Reviews and Meta-Analysis in Clinical Research (Michael A. Stoto).

Chapter 18 Biostatistics in Epidemiology: Advanced Methods of Regression Analysis (Mark S. Goldberg).

Chapter 19 Genetic Inference (Dan L. Nicolae, Thorsten Kurz, and Carole Ober). Chapter 20 Identifying Disease Genes in Association Studies (Dan L. Nicolae, Thorsten Kurz, and Carole Ober). Chapter 21 Risk Assessment (A. John Bailer and John C. Bailar III).