

## Contents

<b>Preface</b>	<b>v</b>
<b>About the Editors</b>	<b>ix</b>
<b>Section 1. Statistical Methods in Biomedical Research</b>	<b>1</b>
Chapter 1. History of Statistical Thinking in Medicine Tar Timothy Chen	3
Chapter 2. Evaluation of Diagnostic Test's Accuracy in the Presence of Verification Bias Xiao-Hua Zhou	21
Chapter 3. Statistical Methods for Dependent Data Feng Chen	45
Chapter 4. Statistics used in Quality Control, Quality Assurance, and Quality Improvement in Radiological Studies Ying Lu and Shoujun Zhao	101
Chapter 5. Cost-Effectiveness Analysis and Evidence-Based Medicine Jianli Li	157
Chapter 6. Quality of Life: Issues Concerning Assessment and Analysis Ji-Qian Fang and Yuantao Hao	195
Chapter 7. Meta-Analysis Xuyu Zhuo, Ji-Qian Fang, Chuanhua Yu, Zongli Xu and Ying Lu	233
Chapter 8. Describing Data, Variability and Over-Dispersion in Medical Research Ming Tan	319

Chapter 9. Time Series Analysis And Its Applications in Medical Sciences Jinxi Zhang, Yingdong Zheng and Dejian Lai	333
Chapter 10. Applications of Statistical Methods in Medical Imaging Jesse S. Jin	379
<b>Section 2. Statistical Methods in Pharmaceutical Research</b>	<b>407</b>
Chapter 11. Statistics in Pharmacology and Pre-Clinical Studies Tze Leung Lai, Mei-Chiung Shih and Guangrui Zhu	409
Chapter 12. Statistics in Biopharmaceutical Research Shein-Chung Chow and Annpey Pong	443
Chapter 13. Statistics in Toxicology James J. Chen	495
Chapter 14. Some Statistical Issues of Relevance to Confirmatory Trials George Y. H. Chi, Kun Jin, Gang Chen and Lu Cui	523
<b>Section 3. Statistical Methods in Epidemiology</b>	<b>581</b>
Chapter 15. Statistics in Genetics Zhaohai Li and Minyu Xie	583
Chapter 16. Dose-Response Modeling in Health Risk Assessment Yiliang Zhu	617
Chapter 17. Statistical Models and Methods in Infectious Diseases Hulin Wu and Shoujun Zhao	645
Chapter 18. Special Models for Sampling Survey Sujuan Gao	685
Chapter 19. The Use of Capture-Recapture Methodology in Epidemiological Surveillance Anne Chao, H-C. Yang and P. S. F. Yip	711
Chapter 20. Statistical Methods in the Effect Evaluation of Mass Screening for Diseases Qing Liu	741
Chapter 21. Causal Inference Zhi Geng	777

<b>Section 4. Advanced Statistical Theory and Methods</b>	<b>813</b>
Chapter 22. Survival Analysis Danyu Lin	815
Chapter 23. Regression Models for the Analysis of Longitudinal Data Colin Wu and Kai F. Yu	837
Chapter 24. Local Modeling: Density Estimation and Nonparametric Regression Jianqing Fan and Runze Li	885
Chapter 25. Bayesian Methods Minghui Chen and Keying Ye	933
Chapter 26. Stochastic Process and Their Applications in Medical Science Caixia Li and Ji-Qian Fang	991
Chapter 27. Tree-Based Methods Heping Zhang	1033
Chapter 28. Maximum Likelihood Estimation From Incomplete Data via EM-Type Algorithms Chuanhai Liu	1051
Chapter 29. Introduction to Artificial Neural Networks Jielai Xia, Jiang Hongwei and Tang Qiyi	1073
<b>Index</b>	<b>1091</b>