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Autore	Molenberghs Geert
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Nota di contenuto	Missing Data in Clinical Studies; Contents; Preface; Acknowledgements; I Preliminaries; 1 Introduction; 1.1 From Imbalance to the Field of Missing Data Research; 1.2 Incomplete Data in Clinical Studies; 1.3 MAR, MNAR, and Sensitivity Analysis; 1.4 Outline of the Book; 2 Key Examples; 2.1 Introduction; 2.2 The Vorozole Study; 2.3 The Orthodontic Growth Data; 2.4 Mastitis in Dairy Cattle; 2.5 The Depression Trials; 2.6 The Fluvoxamine Trial; 2.7 The Toenail Data; 2.8 Age-Related Macular Degeneration Trial; 2.9 The Analgesic Trial; 2.10 The Slovenian Public Opinion Survey 3 Terminology and Framework 3.1 Modelling Incompleteness; 3.2 Terminology; 3.3 Missing Data Frameworks; 3.4 Missing Data Mechanisms; 3.5 Ignorability; 3.6 Pattern-Mixture Models; Part II Classical Techniques and the Need for Modelling; 4 A Perspective on Simple Methods; 4.1 Introduction; 4.1.1 Measurement model; 4.1.2 Method for handling missingness; 4.2 Simple Methods; 4.2.1 Complete case analysis; 4.2.2 Imputation methods; 4.2.3 Last observation carried

forward; 4.3 Problems with Complete Case Analysis and Last Observation Carried Forward  
4.4 Using the Available Cases: a Frequentist versus a Likelihood Perspective  
4.4.1 A bivariate normal population; 4.4.2 An incomplete contingency table; 4.5 Intention to Treat; 4.6 Concluding Remarks; 5 Analysis of the Orthodontic Growth Data; 5.1 Introduction and Models; 5.2 The Original, Complete Data; 5.3 Direct Likelihood; 5.4 Comparison of Analyses; 5.5 Example SAS Code for Multivariate Linear Models; 5.6 Comparative Power under Different Covariance Structures; 5.7 Concluding Remarks; 6 Analysis of the Depression Trials; 6.1 View 1: Longitudinal Analysis  
6.2 Views 2a and 2b and All versus Two Treatment Arms  
III Missing at Random and Ignorability; 7 The Direct Likelihood Method; 7.1 Introduction; 7.2 Ignorable Analyses in Practice; 7.3 The Linear Mixed Model; 7.4 Analysis of the Toenail Data; 7.5 The Generalized Linear Mixed Model; 7.6 The Depression Trials; 7.7 The Analgesic Trial; 8 The Expectation-Maximization Algorithm; 8.1 Introduction; 8.2 The Algorithm; 8.2.1 The initial step; 8.2.2 The E step; 8.2.3 The M step; 8.3 Missing Information; 8.4 Rate of Convergence; 8.5 EM Acceleration; 8.6 Calculation of Precision Estimates  
8.7 A Simple Illustration  
8.8 Concluding Remarks; 9 Multiple Imputation; 9.1 Introduction; 9.2 The Basic Procedure; 9.3 Theoretical Justification; 9.4 Inference under Multiple Imputation; 9.5 Efficiency; 9.6 Making Proper Imputations; 9.7 Some Roles for Multiple Imputation; 9.8 Concluding Remarks; 10 Weighted Estimating Equations; 10.1 Introduction; 10.2 Inverse Probability Weighting; 10.3 Generalized Estimating Equations for Marginal Models; 10.3.1 Marginal models for non-normal data; 10.3.2 Generalized estimating equations; 10.3.3 A method based on linearization  
10.4 Weighted Generalized Estimating Equations

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#### Sommario/riassunto

Missing Data in Clinical Studies provides a comprehensive account of the problems arising when data from clinical and related studies are incomplete, and presents the reader with approaches to effectively address them. The text provides a critique of conventional and simple methods before moving on to discuss more advanced approaches. The authors focus on practical and modeling concepts, providing an extensive set of case studies to illustrate the problems described. Provides a practical guide to the analysis of clinical trials and related studies with missing data. Examines

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