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	Descrizione fisica	1 online resource (392 p.)
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	Soggetti	Biometry
		Medical statistics - Methodology
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	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Understanding Biostatistics; Contents; Preface; 1 Statistics and medical science; 1.1 Introduction; 1.2 On the nature of science; 1.3 How the scientific method uses statistics; 1.4 Finding an outcome variable to assess your hypothesis; 1.5 How we draw medical conclusions from statistical results; 1.6 A few words about probabilities; 1.7 The need for honesty: the multiplicity issue; 1.8 Prespecification and p-value history; 1.9 Adaptive designs: controlling the risks in an experiment; 1.10 The elusive concept of probability; 1.11 Comments and further reading; References
		2 Observational studies and the need for clinical trials2.1 Introduction; 2.2 Investigations of medical interventions and risk factors; 2.3 Observational studies and confounders; 2.4 The experimental study; 2.5 Population risks and individual risks; 2.6 Confounders, Simpson's paradox and stratification; 2.7 On incidence and prevalence in epidemiology; 2.8 Comments and further reading; References; 3 Study design and the bias issue; 3.1 Introduction; 3.2 What bias is all about; 3.3 The need for a representative sample: on selection bias; 3.4 Group comparability and randomization
		3.5 Information bias in a cohort study3.6 The study, or placebo, effect;

3.7 The curse of missing values; 3.8 Approaches to data analysis: avoiding self-inflicted bias; 3.9 On meta-analysis and publication bias; 3.10 Comments and further reading; References; 4 The anatomy of a statistical test; 4.1 Introduction; 4.2 Statistical tests, medical diagnosis and Roman law; 4.3 The risks with medical diagnosis; 4.3.1 Medical diagnosis based on a single test; 4.3.2 Bayes' theorem and the use and misuse of screening tests; 4.4 The law: a non-quantitative analogue; 4.5 Risks in statistical testing

4.5.1 Does tonsillectomy increase the risk of Hodgkin's lymphoma?

4.5.2 General discussion about statistical tests; 4.6 Making statements about a binomial parameter; 4.6.1 The frequentist approach; 4.6.2 The Bayesian approach; 4.7 The bell-shaped error distribution; 4.8 Comments and further reading; References; 4.A Appendix: The evolution of the central limit theorem; 5 Learning about parameters, and some notes on planning; 5.1 Introduction; 5.2 Test statistics described by parameters; 5.3 How we describe our knowledge about a parameter from an experiment

6.3 Describing the sample: descriptive statistics

Sommario/riassunto	Understanding Biostatistics looks at the fundamentals of biostatistics, using elementary statistics to explore the nature of statistical tests. This book is intended to complement first-year statistics and biostatistics textbooks. The main focus here is on ideas, rather than on methodological details. Basic concepts are illustrated with representations from history, followed by technical discussions on what different statistical methods really mean. Graphics are used extensively throughout the book in order to introduce mathematical formulae in an accessible way. Key features