

**Armitage P.** *Statistical methods in medical research.* Oxford, England: Blackwell Scientific, 1971. 504 p.  
[London School of Hygiene and Tropical Medicine, University of London, England]

This book aimed to provide an account of most of the statistical methods likely to be encountered or needed by medical research workers. It was succeeded in 1987 by a second edition coauthored with G. Berry.<sup>1</sup> [The *SCI*<sup>®</sup> and the *SSCI*<sup>®</sup> indicate that this book has been cited in over 4,165 publications.]

## A Resource for Medical and Biostatistics

Peter Armitage  
Department of Statistics  
University of Oxford  
Oxford OX1 3TG  
England

February 8, 1990

From 1947 to 1960, I was a member of the Medical Research Council's Statistical Research Unit under A. (now Sir Austin) Bradford Hill, whom I then succeeded as professor of medical statistics at the London School of Hygiene and Tropical Medicine. During this time I was drawn into a good deal of advisory and collaborative work with medical research workers, as well as teaching graduate courses. Some of the latter were directed towards young statisticians who proposed to make a career in biostatistics.

I increasingly felt the need for a book that pulled a lot of this material together. There were a number of short books confined to simple techniques. The classic was Hill's *Principles of Medical Statistics*, published in the 1930s but even now (under a different title<sup>2</sup>) providing acute insight into the practical and

ethical problems of medical statistics. What seemed to be needed was a book, not making strong mathematical demands, but covering most of the standard statistical methods likely to be needed in medical research. I was closely influenced by G.W. Snedecor's *Statistical Methods* (later coauthored with W.G. Cochran<sup>3</sup>), which, however, was oriented towards agricultural rather than medical applications.

The book sold steadily during the 1970s and 1980s. Many other books on biostatistics appeared during this period, including some excellent short books suitable for undergraduate medical courses and some important books on epidemiological statistics and clinical trials. There were few potential competitors at about the same level as my book, but it became increasingly obvious during the late 1970s and early 1980s that a new edition was needed. There had been some important technical developments, particularly in the analysis of survival data.<sup>4</sup> Some other areas needed to be strengthened, particularly multivariate analysis, clinical trials, sequential methods, and epidemiological statistics. And the impact of computers, in particular statistical packages, made the book seem a generation out of date. Most people analysing data would use computer packages, and although I still wanted to explain what went on in the "black box," it was clearly possible to remove some of the computational detail.

I therefore asked Geoffrey Berry to help me produce a second edition and this enterprise proceeded smoothly in spite of his move from the UK to Australia. The new edition<sup>1</sup> still appears to fulfil a useful purpose. Interestingly enough, its use is not confined to medical research workers. It is often referred to by biostatisticians who seem to find it a helpful reference book.

1. Armitage P & Berry G. *Statistical methods in medical research.* Boston, MA: Blackwell Scientific, 1987. 559 p. (Cited 145 times.)
2. Hill A B. *A short textbook of medical statistics.* London: Hodder and Stoughton, 1977. 325 p. (Cited 120 times.)
3. Snedecor G W & Cochran W G. *Statistical methods.* Ames, IA: Iowa State University Press, 1980. 507 p. (The 1980 edition alone has been cited 4,390 times.) [See also: Cochran W G. Citation Classic. (Barrett J T, ed.) *Contemporary classics in the life sciences. Volume 2: the molecules of life.* Philadelphia: ISI Press, 1986. p. 251.]
4. Cox D R. Regression models and life-tables (with discussion). *J. Roy. Statist. Soc. Ser. B Metho.* 34:187-220, 1972. (Cited 4,215 times.) [See also: Cox D. Citation Classic. *Current Contents/Arts & Humanities* 8(42):16, 20 October 1986; *CC/Agriculture, Biology & Environmental Sciences* 17(42):16, 20 October 1986; and *CC/Social & Behavioral Sciences* 18(42):16, 20 October 1986.]