In the Bookstores

Essential Statistics for the Pharmaceutical Sciences (Second Edition)

By Philip Rowe;
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SECTION EDITORS

Stephen Gilliver
stephen.gilliver@gmail.com
Alison McIntosh
alison.mcintosh@iconplc.com

This book aims to explain statistics to "those who have to use statistics, but have no ambition to become statisticians *per se*". The author, Philip Rowe, teaches at a university department of pharmacy and clearly understands that many students and researchers who need to understand statistics find it daunting. Although the book is aimed primarily at pharmacy students, much medical research involves both drugs and statistics, so medical writers should also find it a helpful introduction or refresher.

The book is divided into five sections, starting with presenting data, then covering the statistical tests that should be used with different types of data (continuous, nominal, and ordinal) and concluding with a section on other topics such as survival analyses and questionnaires. Most of the 25 chapters cover a specific statistical test such as t-tests, or an aspect of statistics such as confidence intervals.

Two aspects of the book I particularly liked were the way it uses diagrams to replace equations and the fact that complex (and potentially scary) mathematical calculations are firmly relegated to the appendices. These features make the text accessible to non-mathematically minded readers and should reduce the panic that such readers often feel when faced with pages of equations. This is important because, if that panic sets in, many readers give up and develop an allergy to statistics. As Rowe notes in the preface, many other books "place far too much emphasis on the mechanical number crunching of statistical procedures". In contrast, his book seeks to explain the important principles underlying the statistical tests while avoiding giving too much detail. The cleverly designed graphics will also help visual learners who, in my experience, often struggle with books on statistics that present either uninterrupted text or off-putting mathematical equations. Such presentation is not only daunting, but may be ineffective if it fails to convey the underlying principles. As the author comments, most people have access to statistical software packages, so most problems arise from failing to use and understand statistics correctly rather than "the number-crunching". Nevertheless, for anybody who needs to use statistical tests (rather than just write or edit material describing them), the book contains helpful guidance on how to enter data into common statistical software packages and provides a link to a free website developed by the author that offers help with Minitab and SPSS.

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Each chapter is highly structured, starting with a concise summary of what will be covered, and with text helpfully broken up by key points in boxes and plenty of headings, making it easy to navigate. Another nice feature is the use of "pirate boxes" – black-rimmed paragraphs accompanied by grinning skull and crossbone icons which alert readers to statistical dangers and trickery. Throughout the book the text has a chatty, informal style, and the pirate boxes, while highlighting real dangers, are often presented with humour (such as the one headed "Beware of drug companies bearing Odds Ratios").

This book doesn't set out to provide detailed guidance on the use of statistics or presentation of data in medical publications (for which my favourite resource remains Lang and Secic's excellent book "*How to Report Statistics in Medicine*").[1] Perhaps future editions could include more detail on this, such as guidance about the types of graphs that are suitable for journal articles or posters and the best ways to produce these. However, Rowe includes some insights into statistical language which should be useful for writers, such as a nice section on the meaning of the term "risk". The final chapters on multiple testing, survival analysis, and questionnaires are likely to be particularly relevant to writers. They also include some sharp criticism of the sloppy practices of many journals and the need for more rigorous statistical reporting.

Overall, although this book isn't written for medical writers, I think many would find it useful, and the refreshing approach will be especially appreciated by those, like me, who always feel they ought to know more about statistics, but find other texts impenetrable.

Reference

1 Lang TA, Secic M. How to Report Statistics in Medicine: Annotated Guidelines for Authors, Editors and Reviewers. 2nd ed. Philadelphia: American College of Physicians; 2006.

Reviewed by
Elizabeth Wager
Publications Consultant, Sideview
liz@sideview.demon.co.uk