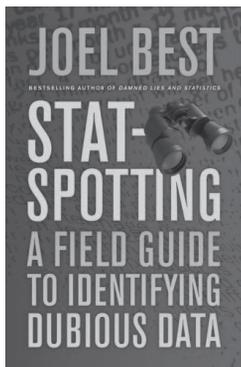# Statistics

Review by Vincent J Felitti, MD, FACP

Stat-Spotting: A Field Guide to Identifying Dubious Data. *By Joel Best. Berkeley (CA): University of California Press, 2008. ISBN-10: 0520257464, ISBN-13: 978-0520257467. Hardcover: 144 pages. $19.95.*

Know Your Chances: Understanding Health Statistics. *By Steven Woloshin, MD, MS; Lisa M Schwartz, MD, MS; H Gilbert Welch, MD, MPH. Berkeley (CA): University of California Press, 2008. ISBN-10: 0520252225; ISBN-13: 978-0520252226. Paperback: 158 pages. $16.95.*

Chances Are: Adventures in Probability. *By Michael Kaplan, Ellen Kaplan. London: Penguin, 2006. ISBN-10: 0670034878; ISBN-13: 978-0670034871. Hardcover: 336 pages. $15.00.*

> *Where is the life we have lost in living?*
> *Where is the wisdom we have lost in knowledge?*
> *Where is the knowledge we have lost in information?*
> —*Choruses* from *The Rock,* TS Eliot

Sometimes when reading medical articles we find a flood of statistical details and jargon that seems to be inserted by an unsubtle hand to force the reader into accepting that something meaningful is being said. "These guys say Cohen's *kappa* is really solid. I don't know what that means, but they seem to." By contrast, I recall years ago subscribing to the *Statistical Bulletin of the Metropolitan Life Insurance Company*. This small journal, from a big company whose livelihood was totally based on statistics, was the epitome of clarity and interesting text. Graphs were always simple; the text was impeccably understandable; nowhere was there an anxious clutter of arcane symbols, followed by decimal numbers in parentheses.

Here are three wonderful new books on how to think about the need, basis, and validity of statistical analysis of a problem. They do not teach statistical methodology; rather, they teach how to think about analyzing problems, and how statistics sometimes help and sometimes cow readers into thinking less perceptively than they might.

Stat-Spotting is a small, easy book that shows us how to use ordinary life experience to spot questionable numbers. It then uses medically interesting examples to progress to the recognition of incorrect interpretations of valid statistical data. "Every statistic is the product of a series of choices made by the people who produce, process, and report the data."[1p111] Biased sampling, misleading presentation of information, and the confusing use of esoteric measures are discussed using medical examples. The author, whose earlier *Damned Lies and Statistics* was highly successful, has produced a meaningful book on an important topic. He uses words, not mathematics, to transmit his ideas.

Know Your Chances: Understanding Health Statistics is clearly written by three internists teaching at Dartmouth and working in the Veterans Administration system. Using solely medical examples, they have four easily understood and useful sections in their book: What is My Risk, Can I Reduce My Risk, Does Risk Reduction Have Downsides, and Developing a Healthy Skepticism. Their multiple examples all involve topical issues in clinical medicine and in medical advertising. Only the simplest mathematics is in use. The book makes good, relaxing reading and is always interesting and relevant to clinical practice.
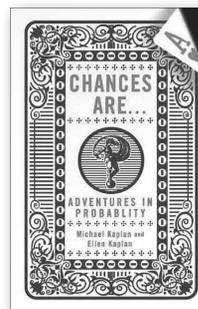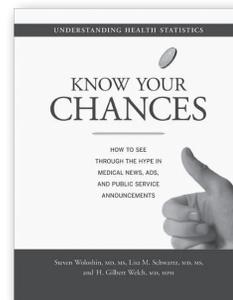
Chances Are is different from the other two books. It is larger, uses some complex mathematics, and has few medical examples, although there is a chapter titled "Healing." It is a quite interesting book because it takes a historical and philosophical approach to show how various statistical concepts originally came into being. This is immediately clear at the outset when the authors open by pointing out that what we now call chance was once termed destiny and attributed to the gods. This may be the preferable book for those with a serious interest in the history of ideas, with confidence in their ability to follow mathematical equations, and with time on their sides. The examples from the gambling chapter are fascinating, though not directly relevant to problems in medical care. The Healing chapter points out, "Medicine is a profession long held in honor because it averts fate."[2] The development of the Null Hypothesis, Student's *t*-test, and Fisher's p values are made alive by well-told examples. Current examples are used to illustrate the core intellectual issues to consider in the interpretation of the public health significance of aggregated clinical findings. It is a wonderful book, but not casual reading.

Any one of these three volumes might be enjoyed by our readers. ❖

References
1. Best J. Stat-spotting: a field guide to identifying dubious data. Berkeley, CA: University of California Press; 2008.
2. Kaplan M, Kaplan E. Chances are: adventures in probability. London: Penguin books; 2006.

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