

# TEACHING OF STATISTICS IN THE HEALTH SCIENCES

JAMES LEEPER

## From the Section Chair

I think we had a great meeting in San Francisco in a beautiful setting. Our sessions were excellent and very well attended. A big thank you to Cyndy Long, Program Chair, for putting together the program and to all participants and attendees. Our Section meeting/mixer also drew a good crowd; "thank you" to a variety of software and textbook vendors for providing door prizes.

Our Section membership is staying steady at about 600 to 700 members. Section finances are down somewhat, due to decreased revenue from the ASA Proceedings, which have moved to CD format. Compared to the previous year, our revenue was down, but so were our expenses, so the past year's deficit was less than the previous year. We do need more presenters to submit their work for the Proceedings, which will help our income. We are also taking steps to further decrease the expense and improve the logistics of producing our newsletter, including moving to an electronic format, in which section members receive an e-mail containing the Table of Contents and a link to the newsletter on the Section website. If you experienced any problems with the newsletter in this format, or you want to receive the newsletter in a different format, please contact the Newsletter Editor, Stephen Looney, at [sloon1@lsuhsc.edu](mailto:sloon1@lsuhsc.edu) or (504) 568-8083.

There is an identified need to increase the number of topic contributed papers. We currently provide prizes for best invited paper, best contributed paper, and best poster. The Section Executive Committee voted to add a prize for the best topic contributed paper *organizer* for next year's meeting as an incentive.

Thank you to three officers who will be leaving their posts at the end of December: Program Chair Cyndy Long, Secretary/Treasurer Naomi Fineberg, and Publications Officer Richard Ittenbach. They will be replaced by Brent Shelton,

Reena Deutsch and Renee Stolove, respectively. We will also have a new Book Review Editor as Dan Bryne replaces Robert Oster, who will be our Section Chair in 2004. As we say in Alabama, good luck to y'all. Hope to see everyone in Toronto and thanks for the privilege to serve as your Chair in 2003. #

## BOOK REVIEW

### Statistical Sleuth, A Course in Methods of Data Analysis

F.L. Ramsey and D.W. Schafer  
Duxbury Press  
(Wadsworth Publishing Co.)  
1997

Reviewer:  
Monica Johnston, M.S.  
Statistical Consultant & Instructor

### Overall Impression

The Statistical Sleuth broadly exposes the reader to graduate level topics in applied statistics and does so in a clear and direct writing style. Authors are keenly aware of where and when to provide detail. Each statistical tool that is discussed involves a solid review of the assumptions for using that tool, as well as the advantages and caveats for using the tool. Also, in the case where the tool proves inappropriate for the data being discussed, the authors direct the reader to alternative analytical tools that might be useful, thus providing a connection with subsequent chapters.

Each chapter begins with a case study, each of which is eclectic and interesting. Authors provide ample background information to the case studies, which are followed by a scope of inference to serve as a reminder about the ability to generalize sample results to the population.

Throughout the book, illustrations are poignant and commendable.

Each chapter contains a Related Issues section, which offers the curious reader alternatives or extensions to the tools presented in that chapter and references for additional reading. This section especially adds to the breadth of this book.

Because of the fascinating nature of the case studies and its emphasis on assumptions of analytical tools, choosing appropriate tools, and making appropriate inferences, the book serves as an excellent tool for teaching graduate level statistics. Due to the diverse nature of the case studies, a consultant or teacher will find that the case studies, in particular, are not relevant to clinical studies or health sciences audience, except where noted.

In general, the book may not serve as a quick reference for a consultant who is looking for more information on a particular technique. Although the case studies are well written, they are often cited throughout the book to demonstrate the use of various statistical tools. Thus, understanding the use of a tool that is demonstrated on case study data in a later chapter requires a review of the case study in the chapter in which the case was originally presented.

Poor formatting for section titles, subtitles, etc. as well as overuse of formatting styles make the book difficult or uninviting to read. Fluidity within the chapters is lacking; transitions between sections are not always evident and subsections sometimes seem unrelated to each other or perhaps poorly organized within the section. However, if a vigilant reader can get past the maze of formatting and focus on the primary message of choosing appropriate statistical methods, then he or she will find that the book is a useful tool for learning.

### Description of Chapters Relevant to the Teacher

The emphasis of the text is on models and methods for analyzing data and not on the mathematical techniques underlying these methods. The book consists of 24 chapters and is suitable for a sequence of three academic quarters or two semesters. A CD-ROM containing data found in the book is included in the purchase of the book. The focus for chapters is as follows:

<u>Chapters</u>	<u>Focus</u>
1-4	Conclusions and interpretations
5-6	Several sample problems
7-8	Regression
9-12	Multiple regression
13-14	Two-way ANOVA
15	Adjustments for Serial Correlation
16	Repeated measures
17	Exploratory Tools for Multivariate Response
18	Comparing Proportions or Odds
19	Tools for Tables of Counts
20-21	Logistic Regression (Binary)
22	Log-Linear Regression (Poisson)
23-24	Experimental Design.

### Synopsis of Chapters

Chapter 1 focuses on interpreting statistical results. Various sampling methods are briefly introduced, as are measures of central tendency and graphical methods for displaying data. Case studies are discussed, results summarized, and the scope of inference is provided.

Chapter 2 provides a discussion on inferences using the t-distribution. One-sample, paired sample, and two-sample examples are given. Hypothesis testing and p-values are discussed.

Chapter 3 provides a solid discussion on the assumptions of the t-test. Robustness of the t-test against departures from normality, departures from independence, and unequal standard deviations, as well as resistance to outliers, are described especially well. Alternatives to the t-test are described. An informative section on data transformation is given, including interpreting the results. This is one of the strongest chapters of the book. Consultants may find that they frequently return to this section to review the theory for this widely used tool.

Chapter 4 focuses on alternatives to the t-test: rank-sum, permutation, and Welch t-tests as alternatives to the independent samples t-test; and the sign and Wilcoxon signed-rank tests as alternatives to the paired t-test. Related issues about equality of variances, complex sampling design and its affect on standard errors, and nonresponse are briefly presented.

Chapter 5 focuses on the comparison of several means. The one-way analysis of variance

F-test is described, including robustness of the test. The residuals plot is introduced as a diagnostic tool. In the Related Issues section, the nonparametric alternative to the one-way ANOVA, the Kruskal-Wallis test, is described.

Chapter 6 extends the discussion in Chapter 5 to focus on linear combinations of means. A variety of adjustments for multiple comparisons of means are mentioned: Tukey-Kramer, Scheffé, least significant difference (LSD), protected LSD, Bonferroni, Newman-Keuls, Duncan's multiple range, and Dunnett.

Chapter 7 focuses on simple linear regression using the least squares method for parameter estimation. The chapter devotes one section to regression terminology, thus laying a solid foundation for pending discussions. Model assumptions, scope of inference, and prediction bands are described. This chapter is especially well illustrated.

Chapter 8 continues the material discussed in Chapter 7 by focusing on the assumptions for simple linear regression. Graphical tools for model assessment are clearly illustrated and described. Interpretation after log transformation is provided as well as an example of using the F-test for assessing the fit of a linear model.

Chapter 9 extends the concepts in Chapters 7 and 8 to multiple regression. The authors do an excellent job at discussing the interpretation of regression coefficients by blending a geometrical explanation with a non-geometrical explanation. Teachers and consultants may find that the flowchart for a strategy for data analysis is a useful tool in teaching and in practice. This chapter is similarly well illustrated.

Chapter 10 focuses on inferential tools for multiple regression. The t-test and F-test are discussed. Interesting topics in the Related Issues sections include quadratic regression, polynomial regression, the history of parsimonious modeling, and informal tests in model fitting.

Chapter 11 focuses on using graphical methods to initially assess outliers and the need for a transformation. The importance of graphical displays is continued in the second half of this chapter in looking at partial residual plots in order to refine regression models. In the Related Issues section, measurement error in explanatory variables and weighted regression as an alternative remedy for nonconstant variance are presented.

Chapter 12 provides a discussion on strategies for variable selection. Variable

selection techniques such as forward selection, backward elimination, and step-wise regression are briefly discussed. Multicollinearity is defined and the consequences of it are described. Methods for addressing bias in models are presented.

Chapter 13 focuses on the analysis of variance for two-way classifications. This chapter contains poignant case studies, especially for randomized block experiments. However, terminology specific to the discussion of ANOVA is not explained well. Also, the discussion of material relating to the case studies is not particularly well organized; this is important given the more complex nature of this technique in comparison to previously described techniques. Additive and non-additive models, along with parameterization, treatment effects, and contrasts are presented.

Chapter 14 discusses multifactor studies without replication. Two cases studies, one agricultural-environmental and one involving cognitive learning in chimpanzees, are described. Data are analyzed and results are presented.

Chapter 15 extends the discussion of regression when there are departures from independence by focusing on adjustments for serial correlation. Two methods are presented, one involving adjustments to standard errors and the other involving transformation of explanatory and response variables. The chapter ends with a discussion on techniques for determining if serial correlation is present to the degree that adjustment is necessary. Teachers may prefer to start a discussion on serial correlation using the later sections of the chapter and then proceed into a discussion on performing adjustments.

Chapter 16 is devoted to repeated measures data. This chapter gives a more than cursory discussion of recognizing multivariate response data and strategies for analyzing them, which is beneficial, especially to students. Multivariate and univariate analyses are compared, which is beneficial to the consultant analyzing the data. The Related Issues section contains a host of variations on this topic such as extending the Hotelling's  $T^2$  tools, one-sample analysis with more than two responses, MANOVA, and the benefits of a repeated measurements experiment.

Chapter 17 discusses exploratory tools for summarizing multivariate responses. Linear combinations, principal components analysis, and canonical correlation are described. Correspondence analysis for ordinating categorical attributes is presented.

Chapter 18 provides a discussion on the comparisons of proportions or odds. This chapter, compared to others, is more mathematical and includes step-by-step calculations. Examples from medicine and epidemiology predominate.

Chapter 19 describes analyses for tables of counts. Sampling schemes that lead to 2 X 2 tables are discussed in detail. The Chi-Square tests for goodness-of-fit, homogeneity, and independence are well differentiated. Fisher's Exact Test is described and compared with other tests. The Mantel-Haenszel Test is described in detail.

Chapter 20 focuses on binary responses and logistic regression analysis. Case studies include survival in the Donner Party and lung cancer in birdkeeping. Again, fascinating case studies, but the information is not well organized. There appears to be an effort to separate the two cases into separate discussion, but then throughout the chapter, there is a mixture, a back-and-forth motion, of discussing both studies. Also, near the end of the chapter, a section entitled Strategies for Data Analysis Using Logistic Regression is presented – beneficial, but perhaps better placed near the beginning of the chapter. As in other chapters, the Related Issues section leads the curious student or consultant to the following extensions or alternatives to logistic regression: probit analysis and discriminant analysis.

Chapter 21 focuses on logistic regression for binomial counts. The concepts from Chapter 20 are extended to analysis of responses that are proportions.

Chapter 22 focuses on log-linear regression for Poisson counts. The techniques that are used in this chapter are similar to those found in Chapter 20. Tools that extend to data where responses are Poisson-like but have excess variation are presented.

Chapter 23 describes the elements of research design. This section is important to any curriculum and serves as a vital review for the consultant who design studies. Brief discussions of control, placebos, blinding, blocking, stratification, covariates, randomization and random sampling, replication, and balancing are provided. Design choices that affect accuracy and precision (i.e., confidence intervals) are addressed. Estimating sample size is discussed. A step-by-step visual for designing studies is provided.

Chapter 24 describes factorial and block designs and complements Chapter 23, thereby

serving as an important review for consultants. Fractional replication, randomized complete block designs, balanced incomplete block designs, and the Latin Square blocking pattern are discussed. #

## BOOK REVIEW

### **Statistical Modeling for Biomedical Researchers: A Simple Introduction to the Analysis of Complex Data**

**William D. Dupont**

**Cambridge University Press  
2003**

**Reviewer:**

**Robert A. Oster, Ph.D.**

**University of Alabama at Birmingham**

**T**he goal of this book is to enable biomedical investigators to effectively use several advanced statistical methods that have been shown to be valuable in medical research, without requiring an understanding of mathematics beyond the high school level. Another goal of this text is to teach biostatistics through the use of Stata, which this reviewer has recommended as an excellent general-purpose statistical software package (Oster 1998, 2002, 2003). As such, the book should be of interest to TSHS members who teach students in the health sciences (including public health), and/or clinical researchers. The text may also be of interest to members who consult with medical investigators who have had some statistical and epidemiological training.

The text is intended for people who have had an introductory course in biostatistics at the level of Pagano and Gauvreau (2000), Armitage and Berry (1994), or Daniel (1999), and an introductory course in epidemiology at the level of Hennekens and Buring (1987) or Rothman and Greenland (1998). The text grew out of the author's second semester course in biostatistics that is taught in the Master of Public Health program at the Vanderbilt University Medical School.

The book contains 11 chapters, one appendix, a list of references, and an index. Chapter 1 ("Introduction") covers descriptive statistics, the basics of the statistical software package Stata, and a refresher on inferential

statistics (including the normal,  $t$ , and chi-square distributions, the two-group  $t$ -test with pooled or unpooled variances, and the paired  $t$ -test). Chapter 2 ("Simple Linear Regression") begins with a discussion of the sample and population covariance and correlation coefficients, and continues with a description of the simple linear regression model, fitting this model to data, estimating the precision of linear regression estimates, 95% confidence and prediction intervals, Lowess regression, residual analyses, data transformations, and testing the equality of regression slopes. Chapter 3 ("Multiple Linear Regression") describes the multiple linear regression model and discusses confounding variables, estimating parameters for a multiple linear regression model and estimating the precision of these parameter estimates, leverage, 95% confidence and prediction intervals, scatterplot matrix graphs, modeling interaction terms, automatic methods of model selection (forward, backward, forward stepwise, and backward stepwise), collinearity, residual analyses, and influence statistics.

Chapter 4 ("Simple Logistic Regression") presents the simple logistic regression model after describing the sigmoidal family of logistic regression curves, the log odds of death given a logistic probability function, and the binomial distribution. This model is then placed into the context of a generalized linear model. This chapter continues with a discussion of maximum likelihood estimation, statistical tests and confidence intervals used in logistic regression analysis (including likelihood ratio, score, and Wald tests), log odds ratios and their associated 95% confidence intervals, logistic regression with grouped response data, 95% confidence intervals for proportions, case-control studies, and logistic regression models for  $2 \times 2$  contingency tables. Chapter 5 ("Multiple Logistic Regression") presents the multiple logistic regression model after describing the Mantel-Haenszel estimate of an age-adjusted odds ratio, the Mantel-Haenszel chi-square statistic for multiple  $2 \times 2$  tables, the 95% confidence interval for the age-adjusted odds ratio, and the Breslow-Day test for homogeneity. This chapter continues with discussion of logistic regression for multiple  $2 \times 2$  contingency tables, deriving odds ratios from multiple parameters, the standard error of and confidence intervals and hypothesis tests for a weighted sum of regression coefficients, multiplicative models for two risk factors (with and without interaction terms), nested models, effect modifiers and confounding variables, goodness-of-fit tests (the Pearson chi-

square and the Hosmer-Lemeshow test), residual and influence analysis, conditional logistic regression, and analyzing data with missing values.

Chapter 6 ("Introduction to Survival Analysis") describes survival and cumulative mortality functions, right censored data, Kaplan-Meier survival curves, 95% confidence intervals for survival functions, the cumulative mortality function, censoring and bias, the logrank test, hazard functions, proportional hazards, relative risks and hazard ratios, and simple proportional hazards regression analysis. Chapter 7 ("Hazard Regression Analysis") essentially covers multiple proportional hazards regression analysis. Discussed here are proportional hazard models with covariates, relative risks and hazard ratios when covariates are present, 95% confidence intervals, hypothesis tests, nested models, Cox-Snell generalized residuals, stratified proportional hazards models, survival analysis with staggered study entry, and proportional hazards regression models with time-dependent covariates.

Chapter 8 ("Introduction to Poisson Regression: Inferences on Morbidity and Mortality Rates") presents simple Poisson regression analysis for  $2 \times 2$  tables after preliminary discussion of incidence, observed incidence, relative risk, and the binomial and Poisson distributions. This chapter continues with discussion of how Poisson regression is a form of a generalized linear model; contrasts between Poisson, logistic, and linear regression; a comparison of Poisson regression and survival analysis; and Poisson regression with a classification variable. Chapter 9 ("Multiple Poisson Regression") begins with a detailed presentation of the multiple Poisson regression model, and concludes with residual analysis for this model.

Chapter 10 ("Fixed Effects Analysis of Variance") begins with a general discussion of fixed-effects analysis of variance, and then progresses to one-way analysis of variance, multiple comparisons, reformulating analysis of variance as a linear regression model, non-parametric methods, and other models such as two-way analysis of variance and analysis of covariance. Chapter 11 ("Repeated-Measures Analysis of Variance") covers repeated measures ANOVA. Also covered in this chapter are response feature analyses, the area-under-the-curve response feature, generalized estimating equations (GEE), common correlation structures, GEE analysis and the Huber-White sandwich estimator, and GEE analysis with logistic or

Poisson models. The appendix contains a detailed summary of Stata commands used in the text. Finally, the list of references contains nearly 80 citations to texts and published articles.

I believe that the book is user-friendly. It gives mathematical and statistical explanations when appropriate, but does not lose the reader in too many equations and in too much statistical theory. I also like the book's approach of using problem-based learning, accompanied by explanatory text. This approach should help the reader learn the statistical concepts and methods quickly.

The organization of this volume is helpful for learning about statistical modeling. The text essentially progresses from introductory statistical material to linear regression (simple and multiple), to logistic regression (simple and multiple), to survival analysis, to Poisson regression (simple and multiple), and finally, to analysis of variance (fixed effects and repeated measures). This is a very logical approach to adopt when learning and/or teaching this material. Dupont does a good job of taking the reader from one type of modeling to the next.

One of the most helpful features of this text is the collection of excellent examples included in each chapter. These examples illustrate specific statistical concepts, and are all drawn from articles published in the medical and public health literature. Results from these examples are presented in a format that will be readily accessible to biomedical researchers.

Another one of the most useful features of this book is a description of how to perform the individual statistical analyses using Stata. These descriptions include the Stata commands that were used, the relevant Stata output, and interpretation of the output (which appears under the sub-heading of "comments"). A substantial part of the text is devoted to these descriptions (Stata commands, Stata output, comments). The tips provided for the Stata features are critical to learning the practical aspects of performing statistical analyses using Stata.

I have only minor criticisms of Dupont's text. First, I believe that the discussion of non-parametric methods in the analysis of variance chapters should have been more complete. The only non-parametric methods discussed are the Kruskal-Wallis test and the Wilcoxon rank-sum test. Clearly, these methods are not the focus of Dupont's text. However, I believe that the Wilcoxon signed-rank test and the Friedman test should have been discussed in these chapters since these two non-parametric techniques are

relevant to repeated measures analyses.

Second, I was unable to find any substantive discussion of exact statistical tests. Even though a text of this type would not be expected to emphasize this topic, it would still be helpful to the reader if these tests were mentioned, and if the criteria under which these tests should be applied were discussed. I believe that this could be done in a heuristic manner without the use of mathematical equations.

The version of Stata referenced in the text (version 7) is already out of date. Version 8 was released in early 2003. However, version 7 was the most current version of Stata when the text was written. Stata commands from version 7 work fine with version 8. Any book illustrating statistical concepts with statistical software will have this problem sooner or later.

In conclusion, I highly recommend "Statistical Modeling for Biomedical Researchers: A Simple Introduction to the Analysis of Complex Data". I believe that it will be much appreciated by biomedical researchers who are eager to learn more about statistical modeling. I also believe that biostatisticians will enjoy using this book for teaching and consulting purposes.

## REFERENCES

1. Armitage, P., and Berry, G. (1994), *Statistical Methods in Medical Research*, Oxford: Blackwell Science.
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3. Hennekens, C.H., and Buring, J.E. (1987), *Epidemiology in Medicine*, Boston, MA: Little, Brown, and Company, 1987.
4. Oster, R.A. (1998), "An Examination of Five Statistical Software Packages for Epidemiology," *The American Statistician*, 52, 267-280.
5. Oster, R.A. (2002), "An Examination of Statistical Software Packages for Categorical Data Analysis Using Exact Methods," *The American Statistician*, 56, 235-246.
6. Oster, R.A. (2003), "An Examination of Statistical Software Packages for Categorical Data Analysis Using Exact Methods – Part II," *The American Statistician*, 57, 201-213.
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8. Rothman, K.J., and Greenland, S. (1998), *Modern Epidemiology*, Philadelphia: Lippincott-Raven.

## From the Book Review Column Editor

Robert Oster, PhD  
University of Alabama at Birmingham

### Fall 2003 Update and Highlight of Book Reviews from Recent Issues of *The American Statistician*

#### Update on Book Reviews

This will be my final column as the book review editor of the TSHS newsletter. I am resigning from this position so that I can focus on my responsibilities as TSHS Chair during 2004. I also believe that it is time to give another section member the opportunity to serve as your book review editor. I have enjoyed serving as the book review editor for the last three years (2001-2003). Thank you for all of your helpful suggestions and words of encouragement.

The new book review editor is Dan Byrne. Dan is located at the Vanderbilt University Medical School. From now on, please send all book reviews, suggestions for books to review, and suggestions for book reviewers to Dan. I still encourage your participation in writing book reviews. Guidelines for book reviews appeared in the Spring 2001 and Fall 2001 issues of the TSHS newsletter. Dan's contact information is as follows: telephone (615) 322-4228; fax (615) 322-1754; e-mail, [Daniel.Byrne@Vanderbilt.edu](mailto:Daniel.Byrne@Vanderbilt.edu). Please welcome Dan as the new book review editor!

Two book reviews appear in this issue of the newsletter. First, Monica Johnston reviews the book *The Statistical Sleuth*. Monica, who is a new TSHS member, used *The Statistical Sleuth* as a text in one her graduate courses, and was enthusiastic about writing the review. I encourage you to read Monica's detailed and well-written book review.

Second, I review the book *Statistical Modeling for Biomedical Researchers: A Simple Introduction to the Analysis of Complex Data*, authored by William D. Dupont. Dr. Dupont, who is also a TSHS member, specifically asked that his book be reviewed in this newsletter; he was also kind enough to ask the book publisher (Cambridge University Press) to provide me with a copy of the text. I encourage you to read this

book review. You may even want to examine the book yourself!

#### Highlight of Book Reviews from Recent Issues of *The American Statistician*

In this issue, I highlight 7 detailed book reviews (and therefore, 7 books) that appeared in issues of *The American Statistician* beginning with the February 2002 issue and concluding with the August 2003 issue. In the Spring 2003 issue of this newsletter, I highlighted book reviews appearing in the 2000 and 2001 issues of *The American Statistician* (up through December 2001).

The book reviews I highlight in this column examine books that could be used for teaching, consulting, and/or training purposes. I am not necessarily recommending that section members adopt these books for classroom or personal use; the decision on book adoption is left up to individual members. I have added some of my own comments after listing the specific book reviews.

1. *Applied Multivariate Data Analysis (2<sup>nd</sup> ed.)*, by B.S. Everitt and G. Dunn, Arnold / Oxford University Press, 2001, reviewed by C. Williams, August 2002, pp. 248-249.

2. *Statistical Consulting*, by J. Cabrera and A. McDougall, Springer-Verlag, 2002, reviewed by C.M. Anderson-Cook, November 2002, p. 329.

3. *Statistics at Square Two: Understanding Modern Statistical Applications in Medicine*, by M.J. Campbell, BMJ Books, 2001, reviewed by R.D. Abbott, November 2002, p. 331.

4. *Statistics with Confidence (2<sup>nd</sup> ed.)*, by D. Altman, D. Machin, T. Bryant, and M. Gardner (eds.), BMJ Publishing Group, 2000, reviewed by R.J. Cleary, February 2003, p. 66.

5. *A First Course in Design and Analysis of Experiments*, by G.W. Oehlert, Kluwer Academic Publishers, 2000, reviewed by S.S. Wulff, February 2003, pp. 66-67.

6. *Statistical Rules of Thumb*, by G. van Belle, Wiley, 2002, reviewed by R.J. Cleary, May 2003, p. 142.

7. *The Statistical Sleuth (2<sup>nd</sup> ed.)*, by F.L. Ramsey and D.W. Schafer, Duxbury, 2002, reviewed by J.

Ledolter, May 2003, pp. 145-146.

I believe that each of these books is oriented toward those whom TSHS members teach, train, or consult with. In the table below, I have stated what the intended audience is for each book and my perception of the tone of the corresponding book review.

Book	Intended Audience & Tone of Review
# 1	Applied science researchers and science students with a significant amount of knowledge in statistics; Somewhat Positive
# 2	Statistical consultants, statistics students (senior undergraduate or junior graduate); Positive
# 3	Physicians, health care providers, medical investigators; Somewhat Positive
# 4	Medical researchers; Positive
# 5	Non-statisticians and students (undergraduate and graduate) who have had an introductory statistical methods course, statisticians; Positive
# 6	Applied researchers, graduate students, statisticians; Positive
# 7	Applied researchers and non-statistics graduate students with a prior introductory statistics course, graduate statistics students; Mostly Positive

I hope that this table is helpful to you.

The new book review editor will be interested in hearing any experiences, positive or negative, that you have had with any of the above books or with any books that have been highlighted in prior issues of this newsletter. #

### 2004 JSM IN TORONTO

## From the 2004 Program Chair: Brent J. Shelton

### UPDATE ON TSHS PROGRAM FOR JSM 2004

The 2004 Joint Statistical Meetings will be held August 8-12, 2004 in Toronto, Ontario, Canada. In preparation for this meeting, I wanted to update the members of our section on the plans we have in place thus far for our one invited session. I also want to take the opportunity to thank Ms. Martha Aliaga who has recently moved from the University of Michigan to the ASA program office in Alexandria, Virginia. She will serve as the 2004 TSHS invited session organizer and has managed to identify 4 good speakers for our invited session. The invited session will be devoted entirely to "Ways to Increase the Number of U.S. Resident Students Who Obtain Ph.D.'s in Statistics and Biostatistics". Mary Gray from American University will speak on the topic of "Attracting Minorities to the Fields of Statistics and Biostatistics," George Cobb of Mount Holyoke College will speak on the topic of "Creating Interest in the Subject Matter," and Louise Ryan from Harvard University and Ed Rothman from the University of Michigan (former chair of statistics there) will be speaking on "Retention of Students and Changing the Department's Environment." We may also have a speaker to discuss "The Role of the ASA Center for Statistics Education," but this has not been confirmed as yet.

**PLEASE HELP!** Please consider getting involved in JSM 2004 by making a contributed presentation of some form. As has been done previously, TSHS will be giving awards for Best Invited Paper, Best Contributed Paper, and Best Poster. Abstracts for contributed presentations are due February 1, 2004. Information and forms will be available in the November 2003 issue of *Amstat News*, and an online version will be available by December 1, 2003 at <http://www.amstat.org/meetings/jsm/2004/>.

In addition to contributed papers and posters, I am also soliciting organizers for Topic Contributed Sessions. I have spoken to at least three folks who are interested in organizing a Topic Contributed Paper session, but have not heard anything definitive from them yet. There is no limit to the number of Topic Contributed Sessions that our Section can sponsor. If you have an idea for a topic and/or speakers you would like to bring together in a session, please contact me. A new award, for Best Topic Contributed Paper Organizer, will be presented by the Section for the first time in 2004.

Your participation in TSHS sessions at JSM 2004 will be greatly appreciated. Feel free to contact me ([bshelton@kcp.uky.edu](mailto:bshelton@kcp.uky.edu) or 859-219-0771 x301) if you have any questions or would

like to get involved with the 2004 TSHS program. I look forward to seeing you good folks in Toronto in August of 2004. #

### 2003 JSM IN SAN FRANCISCO

## From the 2003 Program Chair: Cynthia R. Long

### JSM 2003 RECAP

Our JSM 2003 program was a success. The invited session “**Including Modern Statistical Methods in Teaching Biostatistics to Health Care Professionals**,” drew an audience of more than 50 individuals (standing room only!). The following links will give you a taste of the session

<http://www.public.iastate.edu/~wrstephe/JSM2003/Bootstrap.proc.pdf>,

[http://www.epibiostat.ucsf.edu/epidem/personnel/cemJSMTalk\\_TICRBIostat.pdf](http://www.epibiostat.ucsf.edu/epidem/personnel/cemJSMTalk_TICRBIostat.pdf).

The two contributed paper sessions, “**Issues and Opportunities in the Teaching of Statistics in the Health and Behavioral Sciences**” and “**Innovative Uses of Statistical Designs and Methods in the Health Sciences**” each had audiences of 20-30 individuals. There were 2 Best Contributed Paper award winners: **Rossi Alim Hassad** for “Teaching Introductory Statistics in the Behavioral Sciences—Approach and Rationale” and **Patrick M. Tarwater** for “Censored Observations: Teaching Self-Consistency Equations.” Both received a check for \$100 and a plaque. Congratulations to both of you! We also had two contributed posters and the CE course “**Sample Size Analysis in Study Planning**” given by Ralph O’Brien and John Castelloe was another big hit. Thanks again to all of the presenters and to the session chairs. #

### NEW COLUMN

### INTERACTIONS *Vision Statement*

Renee Stolove, PT, MA, MPH  
Director of Clinical Education  
Assistant Professor of Practice in  
Health Sciences  
New York Medical College Program in  
Physical Therapy

The primary purpose of this column will be to facilitate communication between statistical educators and the health care practitioners they teach. Presentations at JSM and other statistics meetings tend to focus on the challenges faced by statisticians when teaching this audience. I would like to present the viewpoints of the learners as well.

Most JSM presentations in this area have been case studies. This is a good start and can serve as the basis for quantitative efforts. This column can serve to promote networking among members for both qualitative and quantitative research.

I am calling for contributions from both section members and their clinical colleagues. Some specific questions are presented for your consideration.

- How does the healthcare community perceive the role of statisticians? Does this vary between professions? Has this changed with the advent of evidence-based practice?
- When teaching statistics to healthcare practitioners, what should be emphasized? What do clinicians need to know?
- In particular, what does work? For example, I would welcome collaboration through a Book Review column on textbooks that are useful for this audience.
- How do we measure outcomes? (And what outcomes should we be measuring?)

I hope that I have given you some food for thought. Personally, I would welcome a ‘quantitative compadre’ with whom I could collaborate. #

### 2003 Section Officers for TSHS

Chair	James Leeper	(205) 348-1355	<a href="mailto:jleeper@cchs.ua.edu">jleeper@cchs.ua.edu</a>
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## Congratulations!

A BIG pat on the back for these deserving statisticians . . .

TSHS Presentation Award winners at the 2003 JSM in San Francisco:

**Best Regular Contributed Paper:**      **Rossi Alim Hassad, Mercy College**  
**Patrick M. Tarwater, University of Texas**

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