

TEACHING of STATISTICS in the HEALTH SCIENCES

WHAT'S INSIDE

From the Editor

Hello and welcome to the Section on Teaching of Statistics in the Health Sciences Newsletter, Spring 2000 issue. Our feature article is "What They Test ... and Why" by Beth Dawson, John Norcini and myself. This article is based on an invited paper presented by Beth at the 1998 Joint Statistical Meetings in Dallas and describes the results of a survey of the 24 boards that make up the American Board of Medical Specialties. I think the results of this survey provide those of us who teach basic biostatistics and epidemiology to medical residents with some valuable insight into what topics we should be covering in these courses.

This issue also features the second installment of what will be a regular feature of this Newsletter - reviews of biostatistics textbooks by instructors who are currently using them. This issue's review is by Timothy Chen of the University of Maryland School of Medicine and the textbook is *Statistical Models in Epidemiology* by David Clayton and Michael Hills. If you have suggestions for future books for review, please contact Joe Shih, our Book Review Editor, at shihwj@umdnj.edu.

Also contained in this issue is a Special Article by Cyndy Long on her efforts to facilitate communication among isolated biostatisticians. Bob Oster, the 2000 Program Chair, gives us a preview of the Section's activities at the upcoming 2000 JSM in Indianapolis, and Ralph O'Brien, the 2000 Section Chair, gives us his personal perspective on one of the workshops the Section will be sponsoring.

At the end of this issue, we provide information on two of the summer programs available this year in biostatistics and epidemiology, and Rob Weinzimer of the National Center for Health Statistics repeats his call for suggestions about how he can promote the use of NCHS datasets in teaching statistics courses in the health sciences. If you have any ideas, please contact him at the e-mail address given on p. 11 of this newsletter.

Stephen Looney

FEATURE ARTICLE

What They Test... and Why

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While there has quite a bit of interest over the last 50 years in the content of and methods of instruction used in courses in basic biostatistics and epidemiology in medical schools in the United States, this research has focused on the instruction of medical students, rather than on residents.¹⁻⁶ With the recent focus on evidence-based medicine and outcomes research in graduate medical education, there has been an increased demand for the development of critical appraisal skills among practicing physicians. Since board certification in a particular specialty is often a requirement for employment, hospital privileges, etc., it is of interest to learn more about what the certifying boards expect examinees to know.

The purpose of the present study was to determine the biostatistical and epidemiological concepts and skills that specialty certification boards say are important for their diplomates to know. Such information will be useful in developing curricula in biostatistics and epidemiology for residency programs so that examinees will be better prepared for the specialty board exams.

Methods

A cover letter, along with a checklist of content and skills, was mailed to each of the 24 specialty boards

of the American Board of Medical Specialities. Those boards who did not respond initially were contacted by e-mail and/or telephone for follow-up.

Results

Of the 24 specialty boards, 12 participated; two were scheduled for interviews that were never completed; four agreed to participate, but responded no further; four did not respond; and two refused. The 12 specialty boards that did participate in the survey represent 79% of the total number of diplomates that have been certified by the specialty boards in the last 10 years.

Tables 1-6 contain a list of the topics that were sent in the form of a checklist to each of the boards. These topics are broken down into 6 areas: Study Design (Table 1), Descriptive Statistics (Table 2), Figures and Graphs (Table 3), Inferential Methods (Table 4), Interpreting Diagnostic Tests (Table 5), and Statistical Methods (Table 6). The tables summarize the results for the seven boards that returned a completed checklist (Family Practice, Internal Medicine, Pediatrics, Preventive Medicine, Radiology, Surgery, and Pathology).

Of the remaining five specialties who responded to the questionnaire but did not complete the checklist, the responses were as follows.

(1) Colon and Rectal Surgery. There is no specific biostatistical content on their exam; however, their diplomates are also required to be certified by the American Board of Surgery, so they would need to know the content areas and skills required by that board exam. (2) Dermatology. The board stated that "...all the topics and skills [in the checklist] would be desirable for our trainees to know." (3) Emergency Medicine. The board stated that they expect their diplomates to know general biostatistical and epidemiological content, but currently there are no questions in these areas on their board exam. They noted that biostatistics and epidemiology are "...areas in which we'd like to improve." (4) Orthopaedics. The board stated that they expect their diplomates to know almost all the topics and skills on the checklist; however, these are not routinely tested on their board exam, but are included on in-training examinations. (5) Psychiatry and Neurology. The board stated that few of the topics in the checklist are consistently tested on their exams but they agreed that they are important.

Discussion

All of the boards that responded to the survey seemed to value biostatistical and epidemiological concepts and skills, especially as they apply to critical appraisal of the medical literature (and its subsequent application to medical care). However, the concepts and skills were viewed as more important in some specialties than in others and the importance of specific concepts and skills varied from specialty to

specialty. There was a general desire expressed by the boards to include biostatistical and epidemiological content on their examinations, but some of them had not accomplished this to any appreciable degree. Furthermore, the boards differ in how they determine the content that they require their diplomates to know. These methods include examination committees composed of experts (Family Practice, Internal Medicine, Pathology, Pediatrics, Radiology, Surgery), outlines of topics developed from textbooks and journal articles (Internal Medicine), development of other content outlines (Internal Medicine, Pediatrics, Preventive Medicine, Radiology, Surgery), and use of statistician consultants (Radiology). The Preventive Medicine board undertook a consensus-building process to identify core competencies.

It is apparent from the results of this survey that many of the specialty boards do not test on much of what is taught in basic biostatistics and epidemiology courses. For example, these courses generally include instruction in survival analysis and regression, yet only three of the boards that responded indicated that they expect their diplomates to be able to answer questions in these areas. This raises questions about the appropriateness of the topics that are typically taught in these courses, especially as they relate to the skills that residents in these specialties are expected to acquire. It may be that those of us who teach these courses focus too much on our own perspective of what the students need to know. It also appears that the statistical community has not done a very good job of convincing the specialty boards that concepts and skills in our discipline are important enough for their examinees to be tested on. Everyone seems to agree that physicians should be able to read and critique the medical literature but there is less agreement about what they really need to know to be able to do this.

Our recommendation is that statistical educators should work with the specialty boards to determine those content areas that are of most relevance to potential diplomates and develop curricula that adequately address instruction in these areas.

Acknowledgement

We express our appreciation to the Certification Board members and staff who generously provided information for this report; all interpretations and conclusions are those of the authors.

Table 1. Study Design Topics and Skills

STUDY DESIGN	Family Practice	Internal Medicine	Pediatrics	Preventive Medicine	Radiology	Surgery
Topic						
Case-control	%	∇	!	√		∃
Cohort	%	∇	!	√		∃
Clinical trials	%	∇	!	√	☞	∃
Cross-sectional	%	∇		√		
Blinding		∇		√		∃
Random sampling		∇		√	☞	∃
Biases in design, selection		∇	!	√	☞	∃
Skills						
Identify given example	%			√	☞	
Potential biases			!	√	☞	
Interpretation give example	%	∇	!	√		∃
Specify most appropriate				√		
How useful in patient care	%	∇		√	☞	

Table 2. Descriptive Statistics Topics and Skills

DESCRIPTIVE STATISTICS	Family Practice	Internal Medicine	Pediatrics	Preventive Medicine	Radiology	Surgery
Topic						
Mean, median	%	∇		√	☞	∃
Standard deviation, range	%	∇		√	☞	∃
Percentiles		∇		√	☞	∃
Normal distribution		∇		√	☞	∃
Symmetric vs skewed distrib.		∇		√	☞	∃
Skills						
When appropriate to use				√	☞	
How to interpret	%	∇		√	☞	∃
How to calculate				√		
How useful in patient care		∇		√	☞	∃

Table 3. Figures and Graphs Topics and Skills

FIGURES AND GRAPHS	Family Practice	Internal Medicine	Pediatrics	Preventive Medicine	Radiology	Surgery
Topic						
Histograms		√		√	☞	
Scatterplots		√		√	☞	
Error graphs				√	☞	
Box plots				√		
Trend lines		√		√	☞	
Survival curves		√		√	☞	☹
Skills						
When appropriate to use				√	☞	
How to interpret				√	☞	☹
How useful in patient care		√		√	☞	☹

Table 4. Inferential Methods Topics and Skills

INFERENTIAL METHODS	Family Practice	Internal Medicine	Pediatrics	Preventive Medicine	Radiology	Surgery
Topic						
Hypothesis testing	%	√	!	√	☞	☹
P-values	%	√	!	√	☞	☹
Confidence intervals		√	!	√	☞	☹
Power and sample size		√		√	☞	☹
Type I and type II errors	%	√	!	√		☹
Skills						
Define	%	√		√	☞	
How to interpret	%			√	☞	☹
How to calculate			!	√		
How useful in patient care		√		√	☞	☹

Table 5. Diagnostic Tests Topics and Skills

INTERPRETING DIAGNOSTIC TESTS	Family Practice	Internal Medicine	Pediatrics	Preventive Medicine	Radiology	Surgery	Pathology
Topic							
Sensitivity	%	√	!	√	☞	☐	
Specificity	%	√	!	√	☞	☐	
Predictive values	%	√	!	√	☞	☐	
ROC curves		√		√	☞		
Skills							
Define	%	√		√	☞		
How to interpret	%	√	!	√	☞	☐	
How to calculate	%	√	!	√	☞		
How useful in patient care	%	√	!	√	☞	☐	

Table 6. Statistical Methods Topics and Skills

STATISTICAL METHODS	Family Practice	Internal Medicine	Pediatrics	Preventive Medicine	Radiology	Surgery	Pathology
Topic							
t-tests				√	☞	☐	
Chi-square tests				√	☞	☐	
Analysis of variance				√	☞		
Correlation				√	☞	☐	
Regression				√	☞	☐	
Logistic regression				√	☞		
Survival methods		√		√	☞		
Odds ratios/Relative risks	%	√		√	☞		
Skills							
When appropriate to use				√	☞		
How to interpret results	%		!	√	☞	☐	
How useful in patient care		√		√	☞	☐	

References

1. APHA Committee on Training of Medical Health Statisticians (1953). "Training in Medical and Public Health Statistics," *American Journal of Public Health Yearbook 1952-1953, Part 2*, 43,129-134.
2. Hopkins, C.E. (1958). "Biostatistics Instruction in Medical Schools," *Journal of Medical Education*, 33, 370-372.
3. Colton, T. (1975). "An Inventory of Biostatistics Teaching in American and Canadian Medical Schools," *Journal of Medical Education*, 50, 596-604.
4. Springer, J.R., Baer L.J. (1988). "Instruction in Research-Related Topics in U.S. and Canadian Medical Schools." *Journal of Medical Education*. 63, 591-595.
5. Dawson-Saunders, B., Azen, S., Greenberg, R.S., Reed, A.H. (1987). "The instruction of Biostatistics in Medical Schools," *American Statistician*, 41, 263-266.
6. Looney, S.W., Grady, C.S., Steiner, R.P. (1998). "Biostatistics Requirements in Medical Schools in the United States: An Update," *Academic Medicine*, 73, 92-94.

For further information

The following websites contain useful information for anyone teaching in residency education:

- General teaching materials on TSHS website (www.amstat.org)
- RRC (Residency Review Committee) website (www.acgme.org)
- Specialty board websites
 - Allergy and Immunology (www.abai.org)
 - Family Practice (www.abfp.org)
 - Emergency Medicine (www.abem.org)
 - Internal Medicine (www.abim.org)
 - Medical Genetics (www.faseb.org/genetics/abmg/abmgmenu)
 - Neurological Surgery (www.abns.org)
 - Obstetrics & Gynecology (www.abog.org)
 - Ophthalmology (www.abop.org)
 - Otolaryngology (www.aboto.org)
 - Pathology (www.abpath.org)
 - Pediatrics (www.abp.org)
 - Plastic Surgery (www.abplsurg.org)
 - Preventive Medicine (www.abprevmed.org)
 - Radiology (www.theabr.org)

–Surgery (www.absurgery.org)

Book Review

Clayton, David and Hills, Michael
Statistical Models in
Epidemiology
Oxford: Oxford University Press
1993

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The authors of this book are well-known biostatistical researchers. Clayton is at the Medical Research Council, Cambridge, and Hills is at the London School of Hygiene and Tropical Medicine. The content of the book was originally used in summer residential courses in epidemiology and statistics, held in Florence in 1988-92, under the sponsorship of the European Educational Programme in Epidemiology. The book gives a theoretical basis for the statistical methods in epidemiology. According to the authors, "The book is intended primarily for students enrolled for a masters degree in epidemiology, clinical epidemiology, or biostatistics, and should be suitable both as the basis for a taught course and for private study."

The book consists of two major sections: Probability Models and Likelihood, and Regression Models. In the first section, the book starts with an discussion of binary data and the binary probability model. The probability model is used to describe the observed data. The binary model has a risk parameter and the odds parameter which is a transformation of the risk parameter. Then the conditional probability model is introduced and the likelihood function for the data is formally defined, and this central concept is used through out the whole book for statistical inference purposes. Starting with binary data, the authors formulate time to event data as multiple binary data in

consecutive follow-up intervals, which naturally leads to the Kaplan-Meier method for survival data. The authors then introduce the Poisson model for time to event data. The Poisson model has a rate parameter with a unit of per person-year (or other time units). The data come with a total observation time which is assumed to be fixed in a cohort study. The rate parameter can also vary with time. The authors then discuss different definitions for "time" in different problems. The Lexis diagram is explained as a way to separate the effects of two time scales on a rate. The problem of competing risks and selection bias are touched upon.

The normal probability model is explained and used as a springboard to discuss confidence interval and various tests. The approximate normal likelihood is introduced for the risk and the rate parameters. A better approximation is achieved for the log odds and log rate parameters. Wald test and score test are explained as different normal approximations to the log likelihood ratio curves. The choice between the log likelihood ratio, Wald, and score tests is discussed.

The book then proceeds to an investigation of the rate ratio between two treatments. To deal with the problem of confounding, the proportional hazards model is introduced for the comparison of rates with strata. Through likelihood considerations, Mantel-Haenszel estimate and log-rank test are derived naturally. Different methods of standardization are discussed and compared. For the data collected from case-control studies, inferences about the odds ratio and the methods for comparison of odds within strata are explained. The likelihood approach for the analysis of individually matched case-control studies is developed. Dose-response models for both cohort and case-control studies are also derived and analyzed. The first part concludes with a chapter on sample size determination. The material in the first part is based on the concept of likelihood, and almost all the results can be deduced by proper mathematical (pre-calculus) argument.

In the part two, Regression Models, the authors change their strategy of didactics. They no longer explain the details of the likelihood approach since it will be too complicated in regression models with multiple regressors. They explain how to set up the model and use the computer program to compute the results. They first show the equivalent regression models for the constant odds ratio or rate ratio in stratified analyses. Then the Poisson regression model for time to event data in cohort studies and the logistic regression model for binary data in case-control studies are discussed.

The authors include dose-response modeling as a special case. There are very good discussions of interaction, choice and interpretation of models, and additivity and synergism. The extension to conditional logistic regression model is used to take care of the analysis of matched case-control studies. The method is further extended to Cox's model for survival data and time-varying explanatory variables. Nested case-control studies are also covered.

This book is quite different from other books covering statistical methods in epidemiology. The writing is concise, and the exposition is systematic, like a statistics text. It is more concise, up-to-date, and systematic than the standard two-volume text by Breslow and Day. There is no other text like it. Its shortcoming is that there are no references for the statistical formulas given. There is only a short list of books in the Postscript at the end of book. Exercises are given in the text relating to the material just covered. There are no stand-alone exercises at the end of the chapters.

I have taught from this book three times, each with 30-40 lecture hours. In two classes, students were epidemiological researchers who needed a formal instruction to the statistical basis for the methods they use in epidemiology. The mathematical abilities of the students were quite variable. For those who had more mathematical and statistical training, this book was a very good book to give them a systematic explanation and step-by-step derivation of statistical methods. For those who did not have sufficient mathematical preparation, this book was difficult. I also used the book once for upper-level undergraduates and graduate students in statistics. This book was a suitable introduction to epidemiological methods for these students, all of whom had a good mathematical and epidemiological background. The medical and epidemiological origins of the data analyzed in the book are not discussed in sufficient detail. This is not a fault of this book, since it is stated that the book is for masters degree students in epidemiology, clinical epidemiology, or biostatistics. Students with sufficient mathematical maturity and medical and biological background should enjoy studying this book.

Special Article

The Isolated Biostatisticians: Who, What and Where?

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Who Are We?

As members of the TSHS Section, those of us who consider ourselves isolated may work in very different environments, but most of us are likely in academic health care settings. We each need to define the term *isolated* for ourselves. For some of us, this means being geographically isolated from other statisticians. For others, it may mean being part of a non-statistics or non-biostatistics department in a university setting. Many of us actually have other statisticians in our workplace environment, but still find ourselves working primarily in isolation. Whether or not you find yourself in one of the situations I just described is not important; what is important is to recognize that any statistician who feels isolated is an isolated statistician. Furthermore, as we are also members of the TSHS Section, those of us feeling isolated can probably be best described as *isolated biostatisticians*.

I am one of these isolated biostatisticians. As the only statistician at my institution, a chiropractic college, I find myself geographically isolated from the biostatistical community. Since joining the faculty at this college in 1995, I have been fortunate to keep up relationships with former peers and mentors from graduate school, some of whom are even geographically close. These relationships, primarily maintained electronically, have developed into formal collaborations on some projects. These virtual relationships keep me from feeling particularly isolated, until it comes to the day-to-day realities such as operating on a very limited budget for resources and having no one to assist me in supporting the needs of my colleagues and students. These are the situations where I find myself wishing for connections to those who face similar challenges.

What Have We Been Doing?

In pursuit of developing these connections, I organized a panel session at the 1998 JSM in Dallas. There were four of us on the panel; three of us were isolated biostatisticians and the fourth was an isolated statistician in undergraduate education. The specifics of this panel session can be seen elsewhere (Long, Whittinghill, Ardnt and Melander 1998); however, the primary focus of the session was to identify existing resources to meet the unique challenges faced by biostatisticians working in isolated environments. There were three outcomes from this panel session: (1) we developed an e-mail list with the addresses of the approximately 20 people attending/participating in the session; (2) a volunteer put up a web page with some useful links; and (3) a meeting of the *Isolated Biostatisticians* was organized for the 1999 JSM in Baltimore.

Our e-mail list doubled in number over the first year, but got very little use. I remain a subscriber to the email list serve of the Isolated Statisticians (as I imagine many of you do), but find the topics of discussion are typically related to the issues faced by the academic isolated statistician (usually a statistician who is the only, or one of two, statisticians in his/her undergraduate mathematics department) and do not very often pertain to my needs. Therefore, in an effort to facilitate more interaction among us, I set up a similar email list serve for the *Isolated Biostatisticians*. To date, this communication mechanism has not received much use either. The web page, which contained some useful links, was a good start, but it never went anywhere.

The *Isolated Biostatisticians* did meet at the 1999 JSM. There were about 15 of us who met for 1½ hours; half had attended the panel session at the 1998 JSM, but the other half just found it listed in the program and thought it may pertain to them. We sat in a circle, ate our lunches, presented our individual situations and, most importantly, discussed how this *Isolated Biostatisticians* group could help us. Most that attended this meeting are employed in academic or non-profit health care settings and much of the discussion focused on the issues we face in supporting our colleagues' research efforts. We also discussed other topics including: (1) using the email list as a "safe place" for questions; (2) using this group as a "virtual" critical mass (to share ideas, to plan useful conference sessions, and such); and (3) the evaluation of job performance.

JSM 2000

I have requested that a meeting of the *Isolated Biostatisticians* be scheduled at the upcoming JSM in Indianapolis on Tuesday, August 15, 12:30pm – 2pm. The location and final date/time will be listed on the JSM website, as well as in the program. I will put a preliminary agenda together prior to the meeting and look forward to input from anyone interested in participating.

I also want to bring to your attention a topic (special) contributed panel session organized by Bob Rodriguez, 2000 program chair for the Section on Physical & Engineering Science and Jose Ramirez, 2000 program chair for the Section on Quality & Productivity: "The Isolated Statistician: Challenges and Opportunities for the Statistics Profession." Although this session is sponsored by sections representing statisticians primarily from industry, the *Isolated Biostatisticians'* meetings and e-mail correspondence have included several people from industrial settings, and, as you may expect, the challenges they face are similar to those we face in academic health care settings. The session is scheduled for Sunday, August 13, 2:00pm – 3:50pm. This may provide a unique opportunity to discuss the challenges shared among all isolated statisticians supporting research efforts.

Where Are We Going?

On most days, I do not even consider myself isolated. It seems impossible to actually be isolated in today's world of having the internet and e-mail at our fingertips. However, I am finding it more difficult to efficiently sort through the constantly changing and multiplying resources available on the Web, as well as to keep up with the amount of e-mail I receive daily. I wish for a more efficient method of identifying the resources that will meet my needs. This brings me back to one of my original missions in planning the panel session in 1998: the desire to have a repository of resources easily available to the isolated biostatistician, including links to websites, software reviews and book reviews. I recently noticed that this wish list seems to be very consistent with the mission statement of the TSHS Section. In fact, some of these items are listed verbatim in the objectives to meet the mission. Perhaps by contributing to the Section activities, including the newsletter and website, we can fill many of our needs.

If you are interested in using the list serve for the *Isolated Biostatisticians* as a forum to bring up issues, look for resources, ask for advice, influence or organize sessions at future meetings, or talk with biostatisticians facing similar challenges

to your own, please consider subscribing to it. It will only be as useful as we make it.

To subscribe to the ISOBIO mailing list, send an email message to:

- mailserv@palmer.edu
(Note: no "e" on the end, just mailserv.)
- In the text of the message include the following: "subscribe isobio <<your name>>"
- It does not matter what you put in the subject line.

You will receive two email responses to this message:

- (1) a confirmation that you have been added to the ISOBIO mailing list;
- (2) a message welcoming you to the list, which includes instructions for subscribing and unsubscribing to the list and the address to use for all communications to the list, which is isobio@palmer.edu

References

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2000 JSM in Indianapolis

From the 2000 Program Chair: Robert Oster

TSHS has an exciting program planned for the 2000 Joint Statistical Meetings in Indianapolis. Section members will not want to miss TSHS sessions and workshops this year.

This year, a total of 25 individuals will be giving either paper or poster presentations. In addition, four individuals will be presenting workshops. Following is a brief description of TSHS sessions and workshops that will occur this year. Please note that session numbers are not given since they are still subject to change. For up-to-the-minute information on TSHS sessions and the entire JSM program, visit the ASA website www.amstat.org/meetings/jsm/2000/jsm2000prog.

TSHS is sponsoring four complete paper sessions this year. These sessions include one invited paper session, one topic contributed paper session, and two regular contributed paper sessions.

The invited paper session is entitled "Are We Teaching Medical, Health Science and Biostatistics Students What They Need to Know?". The three speakers are Stephen Looney, Peter Imrey, and Ralph Buncher. The discussant is Ted Colton. The session chair is myself. This session will occur on Tuesday, August 15 at 2:00 PM. This session will address whether or not we, as statistical educators, are providing medical, graduate health science, and graduate biostatistics students with appropriate and sufficient knowledge in statistical thinking, statistical methods, statistical computing, and statistical consulting.

The topic contributed paper session is entitled "Innovative Methods in Teaching to, Consulting with, and Communicating with Health Science Students and Professionals". The five speakers are Yvonne Michel, Paul Kolm, Mary Ann O'Riordan, Rebecca Moore, and James Godbold. The session chair is Lynn Ackerson. This session will occur on Monday, August 14 at 10:30 AM. This session will focus on methods used to teach to and consult with health science individuals who are not statisticians.

The first regular contributed paper session is entitled "The Interface of Teaching, Consulting, Computing and the World Wide Web in the Health Sciences". The seven speakers are Charles Federspiel, Kristin Hedberg, Emelita Wong, Jeffrey Wilson, Andre Lubecke, Christopher Malone, and Susan Sereika. The session chair is Tzu-Cheng Kao. This session will occur on Sunday, August 13 at 4:00 PM.

The second regular contributed paper session is entitled "Creative Ways to Impart Statistical Knowledge to Health Science Students". The six speakers are Carole Bennett, Daniel Cipriani, James Whitmore, Gerald Arnold, Matthew Mayo, and David LeBlanc. The session chair is Micheal Mosier. This session will occur on Tuesday, August 15 at 8:30 AM.

The three TSHS poster presenters are Sondra Perdue, Renee Stolove, and Sara Vesley. All three posters will be presented during the regular contributed poster session on Wednesday, August 16, beginning at 12:00 noon.

Finally, TSHS is sponsoring three one-half day workshops this year. The first workshop is entitled "Determining Sample Size and Power in Study Planning: nQuery Advisor". The presenter is Janet Elashoff. This workshop will occur on Monday, August 14 at 8:30 AM. Elashoff will demonstrate nQuery Advisor (www.statsolusa.com). Her workshop will be example-driven, and is intended primarily for people unfamiliar with sample size techniques. However, it

will be shown how nQuery Advisor can be used to handle complex situations.

The second workshop is entitled "Writing Effectively: Communicating with Non-Statisticians". The presenters are Michelle Selic and Thomas Lang. This workshop will occur on Monday, August 14 at 1:00 PM. Selic and Lang will focus on several important techniques used for communicating technical information, particularly statistical information, to non-statisticians. Lang and Selic have already authored a text with the title *How to Report Statistics in Medicine: Annotated Guide for Authors, Editors, and Reviewers*.

The third workshop is entitled "Conventional Database: A Traveler's Guide to Database Theory and Common Query Languages". The presenter is Rebecca Grasser. This workshop will occur on Tuesday, August 15 at 8:30 AM. This workshop is intended for applied statisticians who would like to become more conversant in modern data storage and data retrieval methods, and will be example-driven. Grasser is a database maven who happens to be a non-statistician. This workshop grew out of discussions at last year's TSHS panel session, "Getting Totally Wired! – Ways to Use the Internet in Teaching Biostatistics".

The first two workshops were offered at the 1999 JSM in Baltimore, and both received good reviews from participants. The third workshop is being offered for the first time this year. Each of these workshops would be helpful to TSHS members.

This year, TSHS is offering four awards. These awards will be for Best Invited Paper, Best Topic Contributed Paper, Best Regular Contributed Paper, and Best Regular Contributed Poster. All session attendees will be invited to vote for these awards. Awards consist of a plaque and a cash prize. All award winners will be recognized in a future issue of *Amstat News*, and also in the fall issue of the TSHS Newsletter.

Finally, TSHS is co-sponsoring nine sessions this year. The primary sponsor of five of these sessions is the Section on Statistical Education, while the primary sponsor of the other four sessions is the Section on Statistical Consulting. Each of these sessions contains some material of interest to TSHS members. Please look for these sessions, which will occur throughout the week, in the final program guide or on the ASA Web site.

Additional information and updates on the TSHS program will be provided in an article that will appear in the summer issue of the TSHS newsletter.

This year's program is one of the strongest

and most diverse TSHS programs in recent years, both in the topics presented and in the number of presenters. The program certainly reflects the theme of this year's JSM, which is "Celebrate Diversity in Statistics". Thanks to the many of you who have made these things happen!

You are invited to attend any and all TSHS sessions and workshops. I look forward to seeing you all in Indianapolis!

Database Workshop at 2000 JSM

From the 2000 Section Chair: Ralph O'Brien

I am taking just a bit of space to promote our new JSM workshop, "Conversational Database: A Traveler's Guide to Database Theory and Common Query Languages," which will be presented by my close colleague, Rebecca Grasser. What does this topic have to do with the TSHS section? If you can't answer this, you must seriously consider taking Becky's course. If you know the answer, then you already realize that most practicing biostatisticians can profit greatly by knowing the underlying concepts of modern database technologies, and that such training gets short shrift in most graduate stat/biostat programs.

Becky is an ideal person to teach this workshop. She heads a database programming team that operates within a large biostatistical support group at a major academic medical center (Cleveland Clinic Foundation). Her specialty is in designing and building web-based data collection/ management applications that allow anyone using Netscape Navigator or Internet Explorer to enter data and get reports to/from most major relational database systems. Her workshop will cover the main concepts that biostatisticians need to understand about database design and use. I've attended many of Becky's lectures and presentations. She always comes well prepared, both in content and in style. She informs and also entertains. She knows what biostatisticians need to know about database concepts. We are lucky she has agreed to tell us.

Think about taking Becky Grasser's workshop on the Tuesday morning of the JSM in Indy.

Worthy of Note

The Ohio State University Summer Program in Applied Statistical Methods

June 13 - 18, 2000
Columbus, Ohio

Info: (614) 293-6899

<http://www-biostat.med.ohio-state.edu/summer/summer.htm>

The Johns Hopkins University Graduate Summer Institute of Epidemiology and Biostatistics June 19 - July 7, 2000

Info: (410) 955-7158

akhan @ jhsph.edu

<http://www.jhsph.edu/Departments/Epi/summer.html>

Teaching with Data from the National Center for Health Statistics

The NCHS seeks to expand its relationship with higher education. We want to learn how schools use our data or could use NCHS data, so we can develop better ways for disseminating the information and sharing ideas and specific applications.

We are asking members of the ASA's Section on Teaching Statistics in the Health Sciences to help us identify courses that currently use or could use NCHS data. I have already contacted people involved with the NCHS's "Electronic Data Dissemination Program," a group of schools of public health and other university units that receive free data files from us in exchange for promoting their use. I know that there are many people we have not yet heard from who use--or could use--our data in teaching. I'd like to find ways to pool our resources and expand these activities.

Please forward any information or suggestions about how we can promote the use of NCHS datasets in teaching. Thank you.

Rob Weinzimer
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Congratulations!

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

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