FROM THE INSTITUTE

EndNote v. 6

On March 11, 2003, Susan Meadows, Adjunct Assistant Professor and Medical Librarian III from the University of Missouri, Columbia, gave an invaluable presentation during the Clinical Science Workshop about the software program called EndNote. The program consists of a database for storing references; a tool for creating bibliographies (custom tailored to different publications, in the blink of an eye); and an online search tool. EndNote not only makes it possible for researchers to search their own collection of articles using keywords, but also easily and efficiently inserts references to these publications into documents as researchers write.

EndNote is available to everyone at KCOM with a Novell account, which residents and interns affiliated with KCOM may obtain if necessary (see e-mail address in this column). Our licensing provides access to five concurrent users, so it is wise to plan accordingly. In order to request the software, the user should contact the Help Desk and ask to be included in the EndNote group. An e-mail to HelpDesk@kcom.edu is preferable.

An online program tutorial is also available at: http://www.library.qut.edu.au/endnote/tutorials.jsp.

For more information about EndNote, contact Jean Sidwell, Interim Library Director/Medical Librarian, at jsidwell@kcom.edu.

IN THIS ISSUE

From the Institute Offerings
Jane’s Corner
NIH Highlights on Research
Journal Focus
Research Cornerstones
Research Reflections
History Lessons
Special Focus
Picture of the Month
NIH Dictionary
Tidbits

OFFERINGS

April 11, 2003, Joint Basic Science/Clinical Science Seminar, 12-2:35 p.m., McCreight Classroom. Program on Integrins to be presented by Michael Pierschbacker, Ph.D. Bring your own lunch!

April 18, 2003, Clinical Science Seminar, 12-1 p.m., NRMC Conference Room #2. Karen Snider, D.O., Department of OMM, will outline her research on bone mineral density and somatic dysfunction. A light lunch will be provided. RSVP to jcreer@kcom.edu.

Jane’s Corner

This month’s topic: Basics of Survival Analysis (jjohnson@kcom.edu)

Survival analysis describes a group of statistical analysis techniques used to examine a variable which measures the time until some event occurs. They are called “survival analysis” because many of these techniques were developed to analyze data from clinical trials of cancer treatments, where the variable measured was “How long did the subject survive with cancer?” These techniques can also be used to analyze “positive” events also, like “how long before the subject quits smoking”. One unique feature of this type of data is that you may not know the exact amount of time. For example, if at the time you decide to analyze your data, one of your subjects is still alive, you don’t know how long it is until they die from cancer. Or, if one of your subjects was killed in a car accident, you don’t know how long it would have been until they died from cancer. However, you do know that they survived cancer at least a certain amount of time, which gives some information (albeit not exact) about how long it is until they die from cancer. Subjects where the exact time until the event occurs is not known have censored data. Data from these subjects can still be used in survival analysis, where as they would have to be discarded in other types of statistical analysis. Some of the common survival analysis techniques include:

- Actuarial (Life Table) Analysis/Kaplan-Meier Curves (Product Limit Method) – used to estimate the likelihood (probability) of survival to at least a certain time
- Log-rank Test /Gehan (Generalized Wilcoxon) Test – used to compare two or more independent groups on survival time like a two-sample t-test or ANOVA
- Cox Proportional Hazards Model – used to determine whether one or more predictor variables are related to survival time (like linear regression)
NIH HIGHLIGHTS ON RESEARCH

What is NIH Looking For?

To write a successful NIH grant application, you’ll need to understand the NIH granting philosophy. With the goal of improving public health, NIH funds the best scientific research projects applicants send them, as many as they can fund within their budget. Their peer review system evaluates each project for its merit—NIH does not give money to investigators simply because they are established or well known. In general, the scientific quality of a project is the factor that determines whether it is funded.

Proposing elegant science is not enough. Getting a fundable score in peer review, requires the means to accomplish the work. In addition to judging whether the science is compelling, reviewers will assess whether you and your institution have the expertise and resources to get the job done. Are you, the principal investigator (PI), and your colleagues qualified to do the work? Does your institution have equipment and personnel to support you? Does your institution allow you enough time to accomplish the research? And while all these things may be in your favor, reviewers can’t read minds. Thus, the importance of including the information in your written application.

Further, your project must be unique. By law, NIH cannot support a project already funded or pay for research already done. You may not send the application to more than one Public Health Service (PHS) agency at the same time. Full NIH grant writing guidelines are available at: http://www.niaid.nih.gov/ncn/grants/write/write%5Fal.htm

NIH FOCUS

Research on Aging
A Bimonthly Journal of Social Gerontology and Adult Development

Editor: Angela O’Rand
Duke University, Durham, NC

For over two decades, researchers and professionals have turned to Research on Aging for the latest critical issues facing today’s elderly population. This outstanding journal serves as an international forum on the aged and provides the knowledge necessary to help improve practices concerning the elderly. The journal covers timely issues such as:

• Alzheimer’s disease and caregiver support
• Age discrimination
• The aging labor force
• Migration patterns of the elderly
• Aging and social stress
• The demography of aging

http://www.sagepub.co.uk/journals/details/j0142.html

RESEARCH CORNERSTONES

THE YIN AND YANG OF RESEARCH

Threats To Internal Validity

Single Group Threats apply when you are studying a single group receiving a program or treatment. Threats can be greatly reduced by adding a comparable control group to your study.

A History Threat occurs when an historical event affects your program group and causes the observed outcome, rather than the program/treatment.

A Maturation Threat occurs when standard events over the course of time cause your outcome.

A Testing Threat is simply when the act of taking a pre-test affects how that group does on the post-test.

A Instrumentation Threat could occur if the effect of increased participation could be due to the way in which that pre-test was implemented.

A Mortality Threat occurs when subjects drop out of your study, and this leads to an inflated measure of your effect.

A Regression Threat, simply put, means that there is a tendency for the sample to score close to the average (or mean) of a larger population from the pre-test to the post-test. This is common, and will happen between almost any two variables you take two measures of. It is easily remedied through either the inclusion of a control group or a carefully designed research plan.

The 1962 Nobel Prize in Physiology or Medicine honored James Watson, Francis Crick, and Maurice Wilkins for their joint discovery of DNA’s double-helix structure. Their scientific achievement uncovered “the secret of life,” or the way in which cells reproduce and transfer genetic information.

Watson, Crick, and Wilkins came to DNA studies from varied scientific backgrounds. Biologist Watson studied viruses in the 1940s under geneticist and Nobel laureate Hermann Joseph Muller, while physicist Crick and biophysicist Wilkins spent some of their formative time during World War II working, ironically, on deadly military weaponry. Their combined imagination and skill would change the course of genetic research forever.

After many structures and models were abandoned, Watson, Crick, and Wilkins found themselves in earnest competition with American researcher Linus Pauling, whom they determined to “imitate and beat at his own game.”

Watson and Crick lucked out when Pauling claimed he had solved DNA’s riddle. However, Pauling had made a terrible blunder by ignoring an elementary rule of chemical bonding, rendering his structure impossible.

Rosalind Franklin, Wilkins’ expert crystallographer, opposed Wilkins’ helical structure theory, and planned to leave his study after writing up her findings. At a meeting, Wilkins revealed to Watson secretly-duplicated photos from Franklin’s work, one of which struck Watson: “My mouth fell open and my pulse began to race. The pattern was unbelievably simpler than those obtained previously. Moreover, the black cross of reflections which dominated the picture could arise only from a helical structure.” Now all, that remained to do was form a structural hypothesis that would obey the chemistry of DNA and place the bases in the helix backbone. ([http://www.nobelchannel.com/](http://www.nobelchannel.com/))

---

**RESEARCH REFLECTIONS**

**Question 3: What, exactly, was studied?**

**Primary Investigator Concern:** The variables studied are unclear or inappropriate.

**Ways In Which Concerns Manifest Themselves and Solutions:**

- **Inadequate descriptions of the intervention.** The intervention under study (the explanatory variable) needs to be described in detail, whether it is a patient education handout, a drug, an imaging technique, a change in health policy, or a surgical technique. Inadequate descriptions can lead to misinterpretations of the results.

- **Poor operational definitions.** An operational definition defines a variable in measurable terms; e.g., “hypertension” can be operationally defined as a systolic blood pressure above 140 mm Hg. Other conditions, such as arthritis, intelligence, or self-esteem may be harder to define operationally.

- **Inadequate identification or control of potential confounding variables.** Many coffee drinkers smoke. In a study of the health effects of coffee, then, smoking behaviors must be taken into account or the effects of smoking will be attributed to coffee.

- **Unvalidated surrogate endpoints** (or “markers”). A surrogate endpoint is an intermediate result substituted for a clinically important outcome. Changes in a surrogate endpoint are expected to reflect changes in a clinically meaningful endpoint. Surrogate endpoints allow studies to be conducted over shorter periods, but their validity is rarely established.

**Secondary Investigator Concern:** The unit of observation is unclear or inappropriate.

Did the researchers study surgeries or patients, some of whom may have had multiple surgeries?

**Solution:** list all the explanatory and response variables given in the methods, as well as how each variable was measured.

**Next Month... Question 4: How Was the Sample Selected?**

Dr. Wallace teaches at The University of Iowa College of Public Health in the Department of Epidemiology. He specializes in the epidemiology of aging, with research interests in risk factors for cardiovascular disease, risk factors for breast cancer, osteoporosis, and cancer prevention and control. Dr. Wallace will be speaking at the Clinical Research Workshop May 6, 2003, about outcome measures and designing study instruments. He is particularly interested, with regard to his Research Program in the Prevention of Chronic Illnesses and Disability in Adults, in methodological problems, particularly measurement of functional activity and problems of conducting survey research in the elderly.

**NIH DICTIONARY**

National Institute on Aging (NIA) - Est. 1974, NIA leads a national program of research on the biomedical, social, and behavioral aspects of the aging process; the prevention of age-related illnesses; and the promotion of a better quality of life for all older Americans. [http://www.nih.gov/icd/](http://www.nih.gov/icd/)

**EYE ON RESEARCH**

Congratulations to Dr. Neal Chamberlain for being the first person to email the location of the eye on research icon (👀)!
The first person to email jcree@kcom.edu the location of the eye (👀) in this issue will win a Sacajawea gold dollar.

**TIDBITS**

The Charles E. Culpeper Scholarships in Medical Science works to provide medical schools with up to three years of support, including salary and core research expenses, on behalf of carefully selected physicians who are committed to careers in academic medicine. **Nominations will be accepted until August 15, 2003.** Up to four awards of $100,000 per year for up to three years will be made to United States medical schools or equivalent educational institutions. Applicants must have at least one year of postdoctoral clinical training. More information is available at the Rockefeller Brothers Fund website: [http://rbf.org/scholar.html](http://rbf.org/scholar.html).

**National Public Health Week** is April 7-13, 2003. This year’s theme is overweight and obesity. Today, approximately two-thirds of all American adults are overweight or obese. The proportion of children who are overweight has tripled since 1980. The goal during this week is to educate Americans about the health risks associated with this fast-growing epidemic and to present ways to “shape up their future.” [http://www.alpha.org/nphw](http://www.alpha.org/nphw)

Production of this publication is funded by the Academic Administrative Units in Primary Care Grant D12HP00156 between the A.T. Still University/Kirksville College of Osteopathic Medicine and the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine.