knowledge Compassion
DISCOVERY
Research at the University of Tennessee College of Veterinary Medicine
TM
Special Edition
2007

In this Issue

p2
Percent effort allocation

p3
Laboratory animal enrichment

p4
Online resources

p6
Abstract length

Discovery has been remarkably successful and well-received in the college, and has the potential for presenting a variety of issues pertinent to research and our interactions with funding agencies. Federal agencies and scientific journals are placing increasing emphasis on the "responsible conduct of research," and we have decided to use *Discovery* as a vehicle to address some of the most current ethical concerns in research and sponsored programs. This special edition addresses a few of the "hot" issues, and we hope you will find it an informative and interesting read.

The Authorship Question

Imagine you pay Dr. Demanding from Allknowing University to do some laboratory tests for your research project. When writing your manuscript to publish the results, you realize you don't know Dr. Demanding's methods, so you ask him to describe them. He refuses unless he is made a co-author on the paper.

What do you do?

See p. 2



Avoid Falling Prey to Cryptomnesia

Plagiarism. From the time people enter college, maybe even before, they learn to fear the word "plagiarism" perhaps even more than "cheating." Everyone knows cheating is deceitful, but plagiarism evokes something more, something beyond simple deceit. Plagiarism, or taking someone else's words or ideas and passing them off as one's own, is more like stealing.

Every scientist carries the fear of having a research idea usurped, and this universal fear, in part, motivates the implicit "publish or perish" atmosphere in academia. This fear is somewhat paradoxical, however: although the fear of plagiarism motivates publishable progress, that motivation can transform to overwhelming pressure, resulting in the perceived need to publish even when it is not honestly possible.

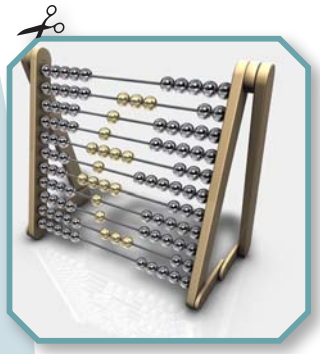
Nevertheless, there are no legitimate excuses for plagiarism, and the scientific community upholds its integrity by keeping the discussion of ethics in research ongoing, as we are doing here.

Specifically, plagiarism can be divided into two categories: 1. failure to acknowledge the source entirely and 2. failure to indicate exact wording with quotation marks, even though the source has been acknowledged.[1] Internet plagiarism detection services like TurnItIn.com make it much easier for instructors to determine when *students* have plagiarized.

See p. 5

Special Edition: Ethics in Research

Cutting Corners on Percent Effort Allocation Not Worth It



When an organization expends more than $500,000 of federal funding annually, a financial audit of its grant spending is required by law.

Considering just 17 faculty members in the college's Center of Excellence in Livestock Diseases and Human Health spent nearly $3 million in federal funding alone in 2006, it is obvious that UT is required to do annual audits.

Understandably, federal funding agencies, and taxpayers in general, want to know what is being done with their money, which is why the university requires that grant applications have an additional detailed budget, regardless of agency requirements.

Following that budget, though, is just as important, as the University of Alabama at Birmingham (UAB) discovered in 2005 after it was asked to refund $3.39 million to the U.S. government. The U.S. Department of Justice contends that researchers at UAB overstated their percent effort allocation, a violation under the False Claims Act.[1]

The most common grant accounting violations are related to improper reporting of percentage (person months) of work effort, resulting in researchers devoting less time to the research project than they reported.[2] However, effort allocation can usually be changed from year to year as long as it is reported and approved by the funding agency.

See p. 6

Authorship

from p. 1

The question of authorship was formally addressed by the Council of Science Editors' (CSE) Task Force on Authorship. They looked at the personal, social, ethical, and legal problems of biomedical authorship in an effort to determine some possible solutions.

The task force identified what they consider the two major problems of authorship: "misattribution of credit and failure to take responsibility." For the sake of brevity, we will focus on credit here. The International Committee of Medical Journal Editors (ICMJE) has specific guidelines for authorship: a true author, according to ICMJE standards, is "someone who has made substantial intellectual contributions to a published study."

Specifically, ICMJE recommends that all three of these conditions be met before including an author's name in the byline:

- "substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data
- "drafting the article or revising it critically for important intellectual content
- "final approval of the version to be published."

Furthermore, ICMJE asserts that an author should not be someone who only secured funding, collected data, or supervised a research group. As the CSE task force points out, though, senior researchers often devote much of their time to obtaining funding, and why would they work to get funding if they were not to be included as authors?

How do we ensure integrity in authorship reporting?

The acknowledgements section is the place for the scientific advisors, according to ICMJE, and that is also the place to recognize purely technical writing help, animal care staff, and data collectors.

How do we ensure integrity in authorship reporting? That is yet to be decided in any level of surety. However, some journals, like *JAMA*, now require specific contributions of each author to be described, and these contributions are published with the article. *JAMA* sought to reduce the occurrence of honorary authorship and ghost writing (failing to identify a qualifying author), among other "deceptive practices."

Still, there are no simple solutions. After all, faculty depend on publications for tenure, and funding sources award money to researchers who have proven they can achieve results and report them, a process most easily measured by authorship.

All these factors contribute to the decision of whether to include Dr. Demanding in that byline. And while we have no control over what Dr. Demanding demands of us, we can choose to make ethical decisions when it comes to our own names being in a byline.

1. Task Force on Authorship. Who's the author? Problems with biomedical authorship, and some possible solutions. *Science Editor*. 2000;23:111-118.
2. International Committee of Medical Journal Editors. *Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication*. Philadelphia, PA: ICMJE; 2006.
3. Rennie D, Flanagin A, Yank V. The contributions of authors. *JAMA*. 2000;284:89-91.

Laboratory Animal Enrichment: Results vs. Well-Being

Does a Balance Exist?

Undoubtedly, animal-based research has significantly impacted the safety, longevity and quality of both human and animal life. Many, if not all, of us are the direct beneficiaries of advances that would have been impossible without the use of animals. As indebted recipients of such life-giving knowledge, we share the responsibility to ensure the appropriate and humane treatment of animal subjects.

Since the early 1960s, animal care and use programs in the United States have experienced rapid evolution. This growth, coupled with the public's interest in the use of laboratory animals and the need for reliable data from animal subjects facilitated the passage of laws, regulations, policies, and standards effectively regulating animal use. First passed by Congress in 1966 and subsequently amended four times, the Animal Welfare Act and the accompanying animal welfare regulations mandate and describe the minimally acceptable standards of animal care; as a USDA-registered research facility, the University of Tennessee must comply with the standards set forth therein.

Additionally, because the university receives support through the U.S. Public Health Service (PHS) for animal-based activities, the institution must provide assurance of compliance with the PHS Policy on Humane Care and Use of Laboratory Animals and the Guide for the Care and Use of Laboratory Animals produced by the National Resource Council.

However, because animal welfare act regulations do not require psychological enrichment activity for any laboratory animal except non-human primates, one recent subject of interest in relation to laboratory animal care is maintaining an enhanced environment that may ensure better health and welfare for the animals.

> Regulations state that only non-human primates must be given psychological enrichment in laboratories

In 2005, Benefiel, et al. questioned the benefits of what they call "housing supplementation" for laboratory animal well-being and research results. The authors remind us that the preferences of animals might not be what are best for their well-being.[1] To see the authors' point, we need only think about what a dog would do with a three-layer, chocolate cake if given the opportunity.

Benefiel, et al. worry that many of the suggestions for housing supplements may be based on animal preferences without research to support them. Furthermore, they assert that rats exposed to enriched environments within their own laboratory weigh more, eat more, and experience more rapid maturation of the long bones than the rats in un-enriched housing. Obviously, these changes could immediately confound experimental results within the same laboratory, between laboratories, and over time.[1]

On the other hand, Weed and Raber call for a balance between "scientifically valid data [and] animal well-being," citing a need for better documentation of environment in research reports to account for the variables. In addition, the authors have observed the rodents in their laboratories are less apprehensive and easier to handle when given enrichment like nesting material or chew toys.[2]

A 2006 report on the effect of available activity for caged mice asserts that when housed in a larger cage with more activity options like a running wheel, mice experience less anxiety. This conclusion is based on the lower frequency with which mice self-administered an anxiolytic (anti-anxiety) drug placed in their drinking water. Mice in cages with unpredictable or no enrichment chose the anxiolytic more often than those in cages where enrichment activity was available.[3]

See p. 5

Responsible Conduct of Research
Online Resources

General Resources

Ethical Conduct in Biomedical Research: A Handbook for Biomedical Graduate Studies Students and Research Fellows, 3rd ed. Published by the Biomedical Graduate Studies Program of the University of Pennsylvania
http://www.med.upenn.edu/bgs/documents/BIOETHICSHANDBOOK4-04.pdf

Online Ethics Center for Engineering and Science at Case Western University
http://onlineethics.org/reseth/index.html
Contains essays, scenarios, and educational resources

Oklahoma State University's "Conducting Research Responsibly"
http://compliance.vpr.okstate.edu/conducting%20research%20responsibly.pdf
While at times university specific, this two-page document provides general responsibilities for principal investigators in several different scenarios.

Grant Accounting Resources

National Institutes of Health Office of Extramural Research's "Frequently Asked Questions Regarding the Usage of Personal Months"
http://grants.nih.gov/grants/policy/person_months_faqs.htm

UTIA Sponsored Research Regulations & Cost Principles
http://taes.tennessee.edu/sponsoredresearch/regs.htm

Authorship Resources

Harvard Medical School's "Authorship Guidelines"
http://www.hms.harvard.edu/integrity/authorship.html

Council of Science Editor's Taskforce on Authorship white paper
http://www.councilscienceeditors.org/services/atf_whitepaper.cfm



Laboratory Animal Resources

University of Tennessee Office of Laboratory Animal Care
http://www.vet.utk.edu/research/olac/

American Association for Laboratory Animal Science
http://www.aalas.org/index.aspx

Institute for Laboratory Animal Research
http://dels.nas.edu/ilar_n/ilarhome/

Lab animal enrichment

from p. 3

For cats, enriched environments can reduce stress, a cause of loss of appetite and increases in blood and urinary cortisol levels and urinary cortisol:creatinine ratios, all potential spoilers when assessing routine panels.[4]

Considering the rapid evolution of laboratory animal care since the 1960s, we can safely expect more change, and some of this change might concern mandated psychological enrichment for all laboratory animals, not just non-human primates. Although laboratory animal care is generally not the primary concern for principal investigators, their input is needed to guide future government policies that may concern their research.

The UT-CVM Office of Laboratory Animal Care (OLAC) recommends enrichment materials for all laboratory small animals, goats, horses, and swine. Faculty and staff at the OLAC are available to provide guidance to any personnel involved in the care and use of animals, and they invite inquiries from investigators prior to animal care and use protocol submission; such consultations will ensure best practices and may shorten the time from submission to approval. Additionally, in conjunction with the university's Institutional Animal Care and Use Committee, the OLAC ensures the institution's compliance with applicable laws, regulations, and policies. The OLAC is located in 336 Ellington Plant Science Building, tel: 4-5634.

Dr. William Hill contributed to this article.

1. Benefiel AC, Dong WK, Greenough WT. Mandatory "enriched" housing of laboratory animals: The need for evidence-based evaluation. *ILAR* 2005;46:95-105.
2. Weed JL, Raber JM. Balancing animal research with animal well-being: Establishment of goals and harmonization of approaches. *ILAR* 2005;46:118-128.
3. Olsson AS, Sherwin CM. Behaviour of laboratory mice in different housing conditions when allowed to self-administer an anxiolytic. *Lab Anim* 2006;40:392-399.
4. Overall KL, Dyer D. Enrichment strategies for laboratory animals from the viewpoint of clinical veterinary behavioral medicine: Emphasis on cats and dogs. *ILAR* 2005;46:202-216.

Cryptomnesia

from p. 1

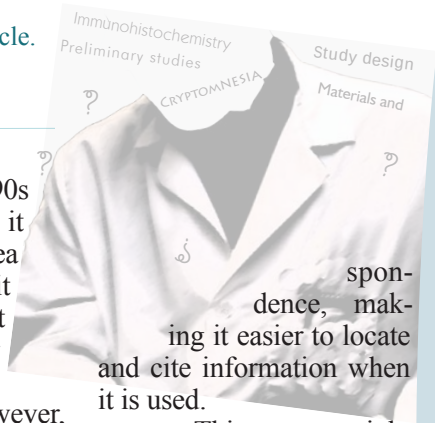
For a fee, the TurnItIn service will check a downloaded document against common "paper mill" Web sites, from which students can get essays written about almost any topic they desire. The paper submitted for plagiarism detection also gets added to the TurnItIn database to be used for future plagiarism detection.

However, students are not the only ones who plagiarize. Despite a mid-1990s study finding that 100% of surveyed molecular and cellular biologists agreed that knowingly using ideas from a written proposal or paper is unethical,[2] the media has made us fully aware that a few faculty plagiarize, too.

For example, a UT at Chattanooga history instructor was recently accused of plagiarizing several parts of a New Hampshire author's 1994 book, and the UT Press has since stopped production on the instructor's book. A full investigation is ongoing, and while the instructor says the plagiarism was unintentional, he admits to "grave oversights" in documentation.[3] Harvard law professor Charles J. Ogletree, Jr., admitted in 2004 that parts of his memoir, *All Deliberate Speed*, had been unintentionally copied from a Yale law professor.[4]

Unintentionally. Although all scholars might agree that intentional plagiarism is unethical, the line of ethical responsibility starts to blur with the word unintentional. In that same mid-1990s study, 11% of the scientists thought it was ethical to use an unaccredited idea from a proposal they reviewed if it was an oversight; 20.3% considered it ethical to accidentally copy ideas or text from published material without giving credit.[2] Those responses, however, were based on plagiarizing written texts. When asked about ideas they had not seen in print, respondents' ethical views weakened even more. Approximately 33% responded that unintentionally failing to give proper attribution for a research idea "obtained in casual conversation with a colleague" is ethical, while over 37% thought it was ethical to base research on a paper they heard presented at a conference, if the failure to give the presenter proper credit was an oversight.[2]

However, if we were that unaccredited presenter, we might feel differently about the oversight. To avoid these types of unintentional plagiarism, it is good practice to write down ideas obtained from listening and attribute those ideas and/or ask the speaker's permission to use them. Although it can be awkward to start taking notes in the middle of a conversation, always keeping an "ideas" file or notebook close by makes it easy to write down ideas after the conversation. This same file can also contain ideas from informal sources such as newsletters, e-mails, or personal correspondence, making it easier to locate and cite information when it is used.



This strategy might prevent what psychologist Carl Jung termed "cryptomnesia," unconscious plagiarism resulting from forgotten memories.

1. Gibelman M, Gelman SR. Plagiarism in academia: trends and implications. *Account Res*. 2003; 10:229-252.
2. Korenman SG, Berk R, Wenger NS, Lew V. Evaluation of the research norms of scientistis and administrators responsible for academic research integrity. *JAMA*. 1998;279:41-47.
3. Herrington A. UT halts book amid plagiarism allegations. *The Chattanooga Times Free Press*. November 14, 2006. Available at: http://www.msnbc.msn.com/id/15708103/. Accessed November 16, 2006.
4. Rimer S. When plagiarism's shadow falls on admired scholars. *The New York Times*. November 24, 2004: B9.

Abstract Length May Limit Future Publication Possibilities

In most cases, scholars and publishers alike regard redundant publication as unethical and costly. What's more, unless both the author(s) and the publisher have agreed to make an exception, duplicate publication may also violate copyright laws.[1]

The main objection to this standard relates to the way original research articles are counted and/or weighted. Redundant publication may result in "double counting or inappropriate weighting of the results of a single study, which distorts the available evidence."[1]

More than 250 words may jeopardize publication

Generally, publishers allow printing of closely-related material that has already been presented at a conference, printed on a poster, or published as an abstract in proceedings. However, the length of that poster or abstract might prevent some future publication opportunities.

One example of many journals that now limit previous abstract lengths is the *Journal of the American Veterinary Medical Association*.

JAVMA's author instructions indicate that a previously published abstract over 250 words may jeopardize publication. *JAVMA*'s scientific editors review such abstracts and make decisions on a case-by-case basis, but the editors automatically reject every paper for which an abstract over 750 words has been presented elsewhere.

However, for the American College of Veterinary Internal Medicine forum, the International Veterinary Emergency and Critical Care Symposium, and the American Association for Cancer Research conference, abstract instructions each allow at or above 350 words. Many other conferences follow similar guidelines.

While it is tempting to crunch as much information as possible into an abstract, using all the permissable space, it is responsible authorship to limit every abstract to 250 words if that abstract might be used later to publish a paper.

Nobody wants to be the person to tell several co-authors a paper cannot be published because it has been consider previously published as a long abstract.

1 International Committee of Medical Journal Editors. *Uniform Requirements for Manuscripts submitted to Biomedical Journals: Writing and Editing for Biomedical Publication*. Philadelphia, PA: ICMJE; 2006.

Accounting

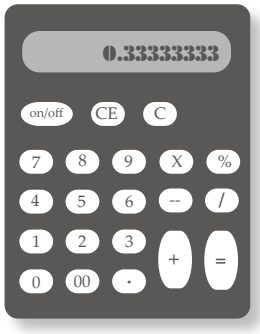
from p. 2

Along those same lines, another common flag in an audit is grant funding used to produce preliminary data for a separate, unfunded project.[2] The grant proposal, including the budget, should be treated as a virtual contract, and if collection of preliminary data is not in that initial contract, funds from the grant should not be used to support preliminary data collection for another project.

Although a system of checks and balances is in place at the university to help keep grant accounting in compliance with regulations, the principal investigator (PI) is ultimately the one in charge of administering the grant.

Sheri Burnette, financial specialist with the UTIA, suggests several routine steps to help PIs stay in compliance. First, she recommends timely recording of charges and adjustments to sponsored projects. In addition, all charges should be processed within 60 days after the project end date. Burnette also reminds PIs that facilities and administrative (F&A) costs should not be charged as a direct cost to the project. For example, salaries for clerical positions, office supplies, postage, maintenance, and utility charges are F&A costs in most circumstances and should not be charged as direct costs.

Burnette suggests all PIs periodically review university policy for sponsored grants and contracts (FI0205). This can be found at *http://www.tennessee.edu/policy.*



1 US Department of Justice. University of Alabama-Birmingham will pay U.S. $3.39 million to resolve false billing allegations [press release]. Washington, DC: US Department of Justice; 2005. Publication 05-194.

2 Couzin J. U.S. rules on accounting for grants amount to more than a hill of beans. *Science*. 2006;311:168-69.

THE UNIVERSITY of TENNESSEE
College of Veterinary Medicine

Discovery is published four times each year by the UTCVM Office of Research and Graduate Programs. Comments and suggestions may be forwarded to the office in care of Misty Bailey: mrbailey@utk.edu or 865-974-7446.
UT is an EEO/AA/Title IX/Section 504/ADA/ADEA Institution
PA# E181703-00-001-07