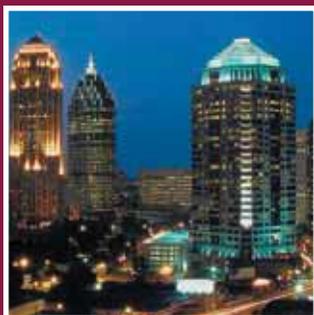


Volume 22  
Number 1  
2007

# AMERICAN MEDICAL WRITERS ASSOCIATION **AWA** JOURNAL

*The Resource for Medical Communicators*



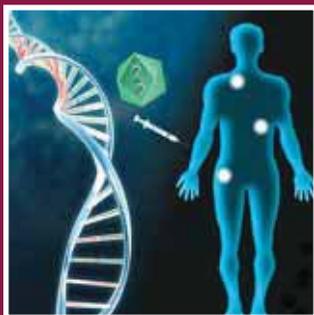
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*Preview of the 2007 Annual Conference*



### Project Management Strategies for Medical Writers and Editors



### Oncology Basics Part II. Targeted Therapies

## MISSION STATEMENT

The *AMWA Journal* expresses the interests, concerns, and expertise of members. Its purpose is to inspire, motivate, inform, and educate them. The Journal furthers dialog among all members and communicates the purpose, goals, advantages, and benefits of AMWA as a professional organization. Specifically, it functions to

- Publish articles on issues, practices, research theories, solutions to problems, ethics, and opportunities related to effective biomedical communication
- Enhance theoretical knowledge as well as applied skills of biomedical communicators in the health sciences, government, and industry
- Address the membership's professional development needs by publishing the research results of educators and trainers of communications skills and by disseminating information about relevant technologies and their applications
- Inform members of important biomedical topics, ethical issues, emerging professional trends, and career opportunities
- Report news about AMWA activities and the professional accomplishments of its departments, sections, chapters, and members

The *AMWA Journal* is published 4 times a year by the American Medical Writers Association (AMWA). For details about submissions, see "Instructions for Contributors" on page 56.

Subscription to the Journal is included with AMWA membership. Nonmember subscriptions cost \$75 per year. Individual archive copies can be purchased for \$20 each, if available. For inquiries regarding subscriptions, please contact AMWA headquarters.

The opinions expressed by authors contributing to this journal do not necessarily reflect the opinions of AMWA or the institutions with which the authors are affiliated. The association accepts no responsibility for the opinions expressed by contributors to the Journal.

The *AMWA Journal* is indexed in the *MLA International Bibliography* and selectively indexed in the *Cumulative Index to Nursing and Allied Health Literature (CINAHL)* print index, the CINAHL database, and the *Cumulative Index of Journals in Education (CJIE)*.

The *AMWA Journal* is available as a PDF file  
in the Members Only area of  
[www.amwa.org](http://www.amwa.org)

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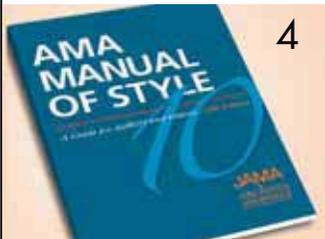
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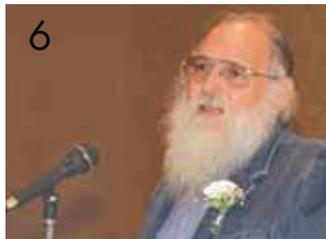
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# *A Legacy of Leadership*

## Note these dates!

### **June 29**

Conference brochure posted on the AMWA Web site ([www.amwa.org](http://www.amwa.org))

### **July 16**

Conference registration begins  
Hotel reservations accepted  
(\$140 per night [single or double])

## AMWA's 67th Annual Conference

October 11–13, 2007

Marriott Marquis, Atlanta, Georgia

Take advantage of the conference “price freeze”—registration and workshop fees for the 2007 Annual Conference will remain the same as the 2006 prices.

Full registration (early bird), \$310

Core workshops, \$85 each

Advanced workshops, \$110 each

Noncredit workshops, \$55 each

## SPECIAL EVENTS

Wednesday, October 10

- 10:00 AM–1:00 PM BELS certification examination
- 5:00 PM–6:00 PM Conference Coach Connection
- 6:00 PM–8:00 PM Welcome Reception sponsored by RPS
- 8:15 PM–9:30 PM Creative Readings

Thursday, October 11

- 9:00 AM–10:30 AM Keynote Address
- 12:15 PM–1:45 PM John P. McGovern Medal Luncheon
- 5:30 PM–6:15 PM New Member Orientation
- 6:45 PM–7:45 PM Chapter Meet & Greet
- 8:00 PM–9:00 PM Coffee and Dessert Klatches

Friday, October 12

- 12:15 PM–1:45 PM Walter C. Alvarez Award Luncheon
- 7:00 PM–9:00 PM Sablack Networking and Recognition Dinner

Saturday, October 13

- 8:00 AM–9:00 AM Breakfast with the Exhibitors
- 5:30 PM–6:45 PM President's Reception/Louisville Kickoff

## FUN FACTS ABOUT ATLANTA

- Capital and most populous city of the state of Georgia (nearly 5 million in the greater metropolitan area according to the July 2005 census)
- Originally named Terminus and then Marthaville before settling on Atlanta in 1845
- One of the key cities of the "New South," having undergone in recent years a transition from a city of regional influence to one of international influence
- Average temperature of 62.4° F in October, perfect for viewing the fall foliage in the North Georgia mountains, just minutes away from the city
- Home of the largest aquarium in the world (The Georgia Aquarium) with more than 100,000 animals and 8 million gallons of fresh and marine water
- Home to fabulous shops, restaurants, and attractions such as the Atlanta Zoo, CNN Center, and World of Coca-Cola®
- Every other street, plaza, or business establishment is named "Peachtree," but good luck finding a peach tree in the city
- Progressive civil rights record with a reputation in the 1960s as the "City Too Busy to Hate"
- Other nicknames for Atlanta: The A-T-L, Hotlanta, A-Town, and The Big Peach
- Celebrities from Atlanta: actresses Dakota Fanning and Holly Hunter, singers John Mayer and Ludacris, and American Idol host Ryan Seacrest

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## REGISTRATION AND HOSPITALITY

Wednesday, October 10

11:00 AM–6:30 PM

Thursday-Saturday, October 11-13

7:00 AM–5:30 PM

## BREAKFAST ROUNDTABLES, OPEN SESSIONS, AND WORKSHOPS

Thursday, October 11

- 7:30 AM–8:45 AM Breakfast Roundtables
- 10:45 AM–12:00 PM Open Sessions
- 2:00 PM–5:15 PM Open Sessions/Workshops

Friday, October 12

- 7:30 AM–8:45 AM Breakfast Roundtables
- 9:00 AM–12:00 PM Open Sessions/Workshops
- 2:00 PM–5:15 PM Open Sessions/Workshops

Saturday, October 13

- 9:00 AM–12:00 PM Open Sessions/Workshops
- 2:00 PM–5:15 PM Open Sessions/Workshops

## POSTERS

Thursday and Friday, October 11 and 12

7:00 AM–5:30 PM

Saturday, October 13

- 7:45 AM–3:30 PM
- 7:45 AM–8:45 AM Visit with the Presenters

## AMWA BUSINESS-RELATED MEETINGS

Wednesday, October 10

- 1:00 PM–4:00 PM 2006–2007 Board of Directors Meeting
- 4:15 PM–5:00 PM Chapter Delegates Session

Friday, October 12

- 5:30 PM–6:30 PM Annual Business Meeting

Saturday, October 13

- 8:00 AM–8:45 AM 2007–2008 Board of Directors Meeting
- 9:00 AM–11:30 AM 2007–2008 Executive Committee Meeting

## EXHIBITS

Thursday and Friday, October 11 and 12

8:00 AM–3:30 PM

Saturday, October 13

8:00 AM–1:30 PM

***Tours are being planned for each day of the conference. Check the AMWA Web site for more information on specific tours and times.***

*We look forward to seeing you in Atlanta!*

# WHAT'S NEW IN THE 10TH EDITION OF THE AMA MANUAL OF STYLE?

By Cheryl Iverson

Chair, AMA Style Manual Committee

Editors and authors eagerly await new editions of style manuals that they refer to frequently because of all the updates and added material that they will contain. But there is also an element of anxiety in beginning to work with a new edition because of all the relearning, or “learning anew,” that will be required to master the changes. Right after the question “When will the new edition be available?” follows closely the question “What’s new?” Here is a short list of what’s new in the 10th edition of the AMA Manual of Style, scheduled for publication in March by Oxford University Press.

Nothing has been deleted, new sections have been added, and existing sections have been expanded, so the change in the “heft” of the book (an increase of more than 300 pages) will be noticeable. This edition contains a completely new chapter on medical indexes and 4 new subsections in the Nomenclature chapter: molecular medicine, ophthalmology, psychiatry, and radiology. The chapter on manuscript preparation has been split into 3 chapters—Manuscript Preparation, References, and Visual Presentation of Data—allowing expanded treatment of all of these topics. A new subsection on homonyms, idioms, colloquialisms, slang, euphemisms, and clichés has been added to the chapter on grammar.

The design of the book is new; the more descriptive page headers and the expanded index in this edition should make this 1,000-page book easier to use.

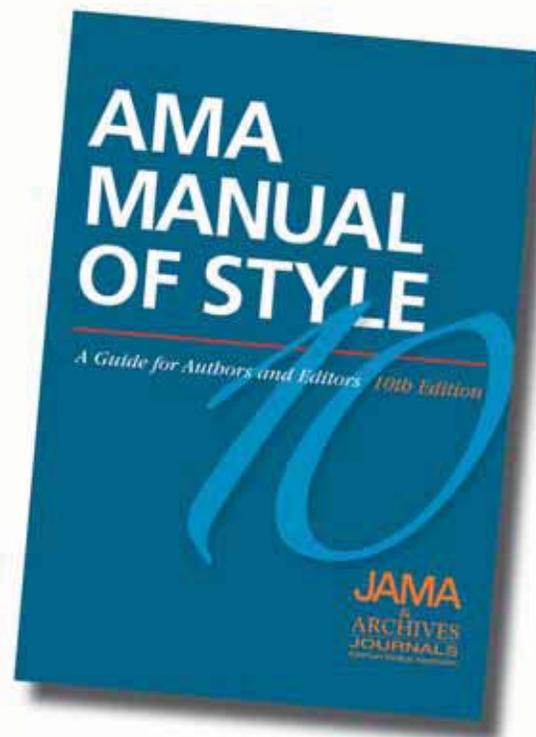
Throughout the book, the changes created by the greater movement to online submission, review, publication, and reading are taken into consideration, from the editorial process itself to the inclusion of at least 50 examples of online reference citation, updated

online resources in the areas of nomenclature, display of data, ethical and legal considerations, treatment of computer terms, samples of online editing and coding, improved readability through typographical design, and updated publishing and resources glossaries. When the print book is published, a companion Web site will offer users more information about the book and the committee that wrote it, FAQs (frequently asked questions) about the manual, and perhaps some small excerpts. An online version of the book is in the planning stages and will be forthcoming in the next couple of years.

The chapter that has perhaps expanded the most in this edition is that on ethical and legal considerations. In the 10th edition, this chapter will include new policies on group authorship and identification of contributions of all authors; updates on conflict of interest; new information on editorial independence in the wake of the firings of the editor of JAMA and other general medical journals; updated definitions of scientific misconduct; new information on data sharing and open access; updates on copyright and trademark, especially as they affect online publishing; new case law on libel and suggestions for minimizing the risk of libel; new patient privacy concerns in scientific publication; revised guidelines for advertising, including online advertising; and updated information on author and editor relations with the news media and early release of information to the public.

Policies have changed in some areas, as follows:

- Table footnotes will now be superscript lowercase letters, not superscript symbols such as asterisks



- Capitalization in line-art figures will move from “title style” to “sentence style,” except for copy on the x- and y-axes
- In persons’ names, Jr and Sr will no longer be set off by commas: John X. Editor, Sr, MD, will become John X. Editor Sr, MD
- State names will be expanded in the text: Chicago, Illinois; in references and full addresses, 2-letter postal codes will be used: Chicago, IL
- Journal references will include issue numbers and the abbreviation for the journal name will be that in use at the time the reference was published (eg, Br Med J or BMJ)

In addition, the policy on the use of SI units has been modified. In JAMA and the Archives Journals, laboratory values for clinical chemistry analyses, hematologic tests, immunologic assays, metabolic and endocrine tests, therapeutic drug monitoring, toxicology

determinations, and urinalysis will be reported by means of conventional laboratory units. For laboratory values, factors for converting conventional units to SI units will be provided in the article. In the text, the conversion factor should be given once, at first mention of the laboratory value, in parentheses following the conventional unit. For articles in which several laboratory values are reported in text, the conversion factors may be listed in a paragraph at the end of the "Methods" section. For figures or tables, the conversion factors should be included in legends or in footnotes, respectively, but not in the abstract of the article.

In other areas, such as eponyms, the policy has remained the same and the rationale has been reexamined. Few changes in policy have been introduced

in the chapter on punctuation, although new (and in some cases, additional) examples have been added.

In much-used glossaries, such as that in *Correct and Preferred Usage* and that in *Study Design and Statistics*, some policies have changed (eg, biopsy is now allowed as a verb) and many new entries have been added. For example, in *Correct and Preferred Usage*, entries are now included on adherence, compliance; participant/subject; chief complaint/concern; impaired/intoxicated; and survivor/victim. In *Study Design and Statistics*, entries are now included on C statistic, imputation, missing data, and propensity analysis, to name a few. Many new entries have also been added to the glossary of publishing terms, such as blog, bot, cookie, e-commerce, and spider.

The work on this edition, as on the 8th and 9th editions, was done by a committee of 10 editors. Although each chapter has a principal author or authors, the work on the book was truly a group effort, with every committee member critiquing many drafts of every chapter. The book was also peer reviewed by editorial colleagues on JAMA and the Archives Journals and elsewhere in the United States and abroad. It is this group effort, of authors and peer reviewers, that requires so much time but that, we hope, makes the book stronger and, after some time to get acquainted, of greater use. The proof of the pudding is in the eating. The value of a new edition of a style manual is in its daily use. Bon appetit!

## AMWA Update to Replace Monthly Postal Mailings

By now, you have received your first AMWA Update, AMWA's new e-mail communication vehicle for members. To keep communications timely, reduce costs, and be more environmentally friendly, the AMWA Update will be sent monthly and, in April 2007, will replace the monthly postal mailings that AMWA headquarters has typically sent. Be sure to read your AMWA Update! It will keep you abreast of upcoming Chapter conferences, AMWA's annual conference, new information and resources on the Web site, and news about AMWA's Listservs. The AMWA Update will also contain links and news to keep you up-to-date on issues related to the profession.

## Invitation to Take Part in AMWA Salary Survey

*Participation will take approximately 10 minutes and will be anonymous*

**Who?** All AMWA members, regardless of place of employment or type of communication service

**What?** A comprehensive survey of salary and other data of interest to a diverse group of administrators, writers, editors, and other medical communicators

**When?** The survey will begin April 18, 2007

**Where?** On a secure Web site.

**What's new?** A raffle for survey participants and more freelance questions

**What else?** Watch for details in an e-mail from AMWA

## DEDICATION

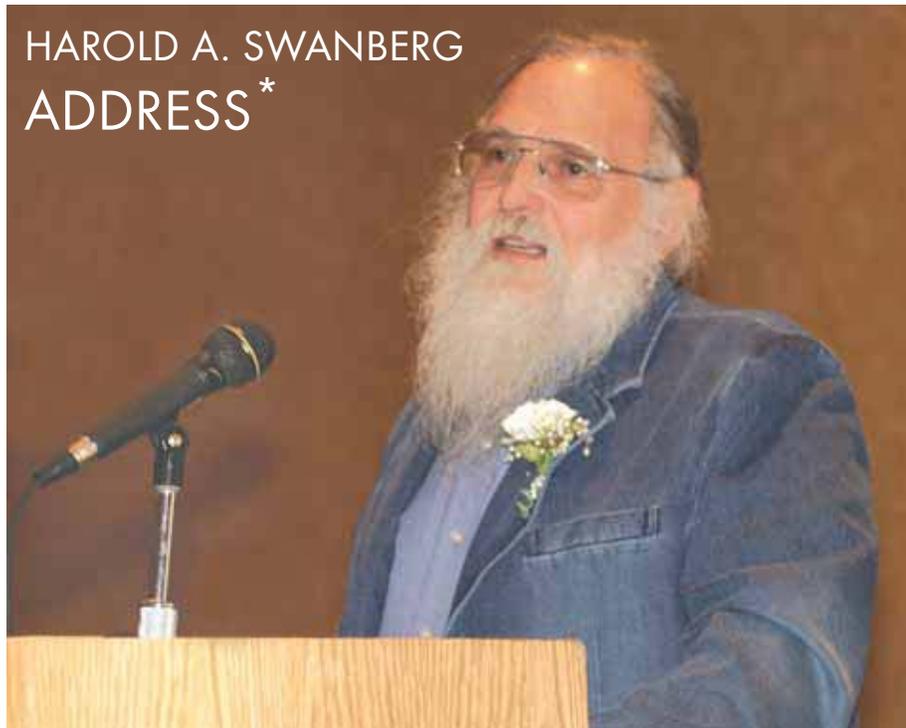
When I gave the Swanberg address in October, a previous recipient of the award had just died. Because I was not aware of this until her obituary appeared the following morning, I did not have the opportunity to offer her a special tribute from the podium. I would like to dedicate this essay to the memory of Dr. Jane Hodgson, the 1996 recipient of the Harold Swanberg Award.

I knew Jane Hodgson in the 1970s, but never so well that I could use the word "friend" without feeling a bit presumptuous. I was performing alternative selective service as the medical director of a community clinic dealing primarily in reproductive health issues; Jane was a respected gynecologist in the community. Jane and her husband (a surgeon) were advisors to our clinic, so we crossed paths fairly frequently. We shared concern for the unmet medical needs of women, especially in reproductive health; we were both also interested in the autonomy of adolescents.

Jane is most remembered for her strongly held view that the decision to have or to perform an abortion is highly complex and highly case-specific, a decision that ordinarily belongs within the moral purview of the people most directly involved. She performed abortions that she deemed to be ethically acceptable, even if they did not conform to strict abortion law Minnesota had at the time. Her conviction (in a case deliberately testing that law) was vacated after the 1973 Supreme Court decision in *Roe vs. Wade*. It would be unfortunate, however, to remember her only as a pioneer advocate for the medical needs of women and for greater freedom in reproductive care. Her concern for distributive justice in health care went far beyond that issue and involved her in programs to try to improve health care delivery in developing nations and in underserved communities within the United States.

Jane may have been a controversial figure, but she commanded respect—even among her opponents—for the courage of her convictions, for her willingness to argue positions rather than chant slogans, and for the breadth of her commitment to justice in health care.

## HAROLD A. SWANBERG ADDRESS\*



## The Swiss Cheese of Peer Review: It's Emmenthaler, not Limburger

By Dale E. Hammerschmidt, MD, FACP  
University of Minnesota School of Medicine

When I received the startling news that I was to be the 2006 recipient of the Harold A. Swanberg Distinguished Service Award, I found it both humbling and gratifying. I did not imagine that my work would attract the attention of the Swanberg Committee. The work I have done has largely been directed toward a relatively small audience (the rhetoric of consent in research) or has had almost the flavor of guerrilla warfare (eg, the editor ever reminding authors that race is an ambiguous categorical variable and must be defined, if one hopes to write science rather than anecdote).

At the time I found out about the award, a few very prominent cases of research fraud had just come to light, and the peer-review system was being harshly criticized in the lay press for its failure to detect and to prevent the publication of fabricated research. I had done some work related to the detection of fraud during my tenure as senior editor and then as editor in chief of the *Journal of Laboratory and Clinical Medicine*, and it was suggested that it would be good for me to address the issues of peer review and fraud in medical publishing as the topic of my Swanberg address. The title of this essay was chosen as a lighthearted metaphor for my position and the "bottom line" conclusion I will offer. Cheese lovers among the readers will be aware that Limburger is a soft and very rich cheese that is often perceived as being a bit on the slimy side and distinctly malodorous. Emmenthaler, in contrast, is a

\*As presented at the 2006 AMWA Annual Conference, October 27, 2006.

firm cheese that is somewhat nutty in character and is full of holes. I think the Emmenthaler is a better metaphor for peer review; the process is indeed a bit nutty and full of holes, but I don't really think it stinks.

#### **CONTEXT: THE CASE**

In 2004 and 2005, 2 papers were published in *Science* describing the work of Professor Hwang Woo-Suk, a veterinarian at the Seoul National University in South Korea. Dr. Hwang claimed that his group had succeeded in establishing embryonic stem cell lines from cloned human embryos. If true, this would have been a very important step along the road to making it possible to use early stem cells therapeutically. The introduction of stem cells into a recipient is essentially a transplant on a very small scale; the immune system of the recipient will recognize that the cells are foreign and will attack them. If it were possible, however, to clone embryos using nuclei from a patient's cells, the resultant stem cells would be immunologically much closer to the patient's own cells and might be tolerated just fine. The 2005 paper was recognized by the editors as an extremely important paper; it was reviewed intramurally by members of the journal's editorial board and also was seen by extramural referees; it was quickly accepted and was pre-published on the journal's Web site.

The applause had not yet died down when questions began to arise. One of the members of the research team (a collaborator from outside Korea) distanced himself from the publication because of what were described as ethical concerns. The first ethical concern voiced was related to the source of the donor eggs, but as the story unfolded, there were other ethical concerns related to data handling and to the inferences drawn. It eventually became clear that there were not sufficient data to conclude that any of the embryonic stem cell lines was a legitimate descendant of a cell that was a true clone. In other words, it wasn't at all clear that the claimed breakthrough had been made. An intramural panel at

the Seoul National University concluded that the necessary data to make the story convincing had simply been fabricated. The papers were retracted in early 2006, and Dr. Hwang is now on trial for fraud.

As soon as this story broke, one began to see articles in the lay press, lamenting this failure of the peer-review system and suggesting that it failed because it was inherently corrupt; the criticism was even sharper in some of the Web postings by patient advocacy groups such as the Alliance for Human Research Protection. The editor of *Science*, the journal in which Dr. Hwang published, observed that peer review was really incapable of detecting fraud if the fraud had been skillfully crafted. It's clear that different people brought different expectations to the discussion.

#### **A MERCIFULLY BRIEF HISTORY OF PEER REVIEW**

Peer review is such a routine part of the scientific publication process now that it is difficult to remember that it is a relatively recent development. Prior to the late 1800s, most scientific publication was in the form of monographs, proceedings of scholarly meetings, and proceedings of scholarly societies. One published by finding the funds to publish (which often meant finding a suitable patron), or one published by being admitted to an honorific society, or one published because a member of such a society invited and sponsored your paper. In the late 1800s and early 1900s, we saw the rapid appearance of journals that allowed open submission of manuscripts, without a requirement for sponsorship or membership in a society. As one simple example, the journal which I edited was founded in 1915 by a publishing company and did not even have an affiliation with a scientific society until 30 years later.

In the early years of open-submission journals, editors simply chose what they wanted to publish and published it. Of course, editors could not all be universal geniuses, so they would sometimes need the advice of a colleague in order to decide whether an

article were good enough or interesting enough to print. But there was not an expectation that papers would routinely be submitted for extramural review, and there was no particular sense that a journal or a paper was of better quality if peer review had been involved. It is amusing to reflect upon the fact that Albert Einstein's most important papers on relativity did not go through peer review; they were reportedly published because the editor thought the ideas presented were so novel that they would occasion highly productive debate.

Over the first half of the 20th century, peer review became a more common part of the evaluation of manuscripts for publication, simply because the number of scientific papers being written became too great for editors to judge without help. But the real rise of peer review as a credential came in the period immediately after the Second World War. At that time, government funding of research was increasing and the government had to decide what research it was going to support. It was decided that a scientific evaluation of research proposals should be done by scholars in the field rather than by government agents. Peer review rapidly became the norm. Implicit in the evaluation of a research proposal is the evaluation of the investigator making the proposal—there is not a lot of point in funding a researcher who won't be able to carry out the project. In order to evaluate the credibility of a researcher making a funding request, it was necessary to scrutinize that researcher's publication corpus. A hierarchy quickly emerged: primary scientific reports were valued more highly than were review articles or opinion pieces; papers that were published in journals that used peer review were valued more highly than papers that were published in other venues. Under this selective pressure, it did not take long for peer review to become the norm.

#### **THE MECHANICS OF PEER REVIEW**

When a journal receives a manuscript in open submission, it is typically sent to 2 or more external reviewers for their evaluation. Those external reviewers

are asked to answer several questions, and the list is quite homologous from one journal to another:

- Does the science appear to have been done well? Was the question well framed; were the methods appropriate; was the analysis appropriate?
- Do the data support the conclusions? If speculations are included, have they been identified as such?
- Are the observations novel? If the observations are merely confirmatory of something that has already been published, is that confirmation so important that it warrants a separate publication?
- Are the observations important? Does the work described in the paper move science forward in a useful direction?
- Does the paper fit the scope and the audience of the journal?
- Do you think we ought to publish it? If so, with what priority?

A few journals will add a question or two to that basic list, for example:

- Can the paper be made shorter or clearer?
- Did you spot any ethical concerns? Were the use of animals and the use of human research subjects appropriate?

Conspicuously absent from that list is the question: “Whaddaya suppose the chances are that this guy just made it all up?” I have been doing peer reviews for roughly 35 years and I spent 15 years actively soliciting them; I have yet to encounter this question on a peer-review form. Quite simply, peer review was not introduced with the idea of detecting and preventing fraud, and peer reviewers are not now given that task by journals. Moreover, peer reviewers are chosen for their expertise in the science under discussion, rather than for their ability to detect irregularities. Finally, referees are given neither the resources nor the time that would be necessary to make a serious attempt at detecting and thereby deterring fraud.

Expecting peer review to detect fraud is a little bit like expecting your mailman to detect your colon cancer. If you see your mailman often, he may notice that you are losing weight and that you have become pale. If you have established a personal relationship with him, he may be bold enough to express concern. But he doesn't have the training or the time or the tools to determine whether you are likely to have a colon cancer; his silence on the issue, therefore, is of no real probative value.

### **AN INSTRUCTIVE CASE FROM OUR SHOP**

My personal interest in publication fraud was heightened by an episode that occurred at the *Journal of Laboratory and Clinical Medicine* roughly a decade ago. We had published 2 papers by an author and had other works by him under peer review. An extramural referee and a reader each expressed concern that the author had produced an improbable number of single-author papers in a relatively short period of time; each had involved fairly detailed follow-up of a large number of patients. It seemed likely to the complainants that the author had either fabricated the manuscripts or denied credit and coauthorship to colleagues who had worked with him on the studies. Because the author had changed institutions several times in the 3 years before the complaint, there was no academic authority to which we could refer these concerns. We ended up doing a rhetorical analysis of the author's entire published corpus—49 papers—and found a number of irreconcilable inconsistencies. (Much of the actual work of the rhetorical analysis was carried out by my colleague from the University of Minnesota Department of Rhetoric, Prof. Alan Gross.) For example, in some cases the human studies would have had to have been done before the animal studies on which they were reportedly based. In others, the work was done (allegedly) before the pathophysiologic mechanism under scrutiny had even been proposed. We outlined the most

important of these inconsistencies in a statement of concern we prepared for publication; we gave the author the opportunity to respond, and he did so. We published the 2 statements together and closed with the judgment that the response was insufficient and with the announcement that the journal withdrew its aegis from the published papers.

Although this is an example that peer review can detect fraud, it's not exactly a cause for celebration. After all, the author had published 49 papers before he was caught—it wasn't until the same referees had seen several of his papers that suspicion arose. Each of the papers was individually quite credible as a predictable next step in a promising line of research that was being followed at many centers. It was only when all of the papers were taken together that the fraud was recognized. Moreover, the withdrawal of journal aegis from these manuscripts did not undo the damage that they had done (they had clinical implications), and it did not completely prevent continued citation of these papers by subsequent authors.

Another instructive case is that of Dr. John Darsee. He published a number of papers that purported to show relatively predictable next steps upon a very promising line of investigation. Again, taken individually, the papers are very highly credible. They were not detected as fraud by peer reviewers. The work was also not detected as fraud by Darsee's more senior collaborators. The fact of fraud was eventually recognized because someone noticed that the researcher was reporting results on far more animals than he had actually purchased. The easiest explanation was that he was in fact designing experiments and carrying them out through the pilot phase; once he was pretty sure how they were going to turn out, corners were cut. It's interesting to ask why his more senior colleagues didn't notice the problem; I think the answer may be quite simple. If you have among your trainees someone who appears to be “a rising star,” you are anxious for that person to

succeed and you enjoy basking in the reflected glory. Moreover, the natural tendency is to trust people, especially those you have personally trained.

From these 2 cases and others that have been published, a certain pattern begins to emerge; that pattern leads to the conclusion that peer review not only often fails to detect fraud—it actually abets fraud. A successful fraudster reports credible next steps rather than things that people will have trouble believing; he may have preliminary data to guide him. As a result, the findings are often confirmed by other laboratories, and the differences between his findings and those of another researcher may be small. Each time he submits one of his manuscripts for publication, he gets one or more helpful critiques. He is told how the study design might have been a bit better; he is cautioned about additional potential explanations for the findings, and he may be told how to improve the statistical analysis. It's quite simple to bring these messages to the generation of fraudulent manuscripts as well as genuine ones. Nothing could be easier than adding another control group or adding another statistical analysis, if you're making it all up in the first place!

The published information about peer review and fraud is very difficult to evaluate because it suffers from ascertainment bias. If peer review catches a fraud and prevents its publication, you usually don't hear about it. This is partly because the level of suspicion that would prevent publication is much lower than the level of suspicion (read: evidence) at which one feels comfortable making the case public. It is also because the journal's standing is different if it has never published the author—you cannot retract the paper or withdraw aegis from it if you never published it. So there is a substantial body of action taken against fraud, but taken privately rather than openly. (Once such case is discussed in an essay in *Minnesota Medicine*, cited in the Recommended Resources.)

### **WHAT'S PEER REVIEW GOOD FOR ANYWAY?**

To this point in the essay, I have argued that peer review was not designed to detect fraud, that it isn't asked to detect fraud, and that it isn't very good at detecting fraud. Is it actually good at doing what it's supposed to do? The answer would seem to be a resounding "sort of." There are difficulties in the quality of peer review that arise from the limited time reviewers have to spend on this uncompensated activity; there are difficulties that arise from the problem (despite all good intentions) of divorcing oneself from one's inherent biases.

One bias is fairly straightforward: it is easier to credit a manuscript that comes from a prestigious research institution than it is to credit a very similar manuscript that comes from a small liberal arts college or the development laboratory of a small company. Twenty years ago, there were a number of studies done in which the institution of origin was masked in a manuscript, or the manuscript's cover material deliberately misstated its origin. When such a doctored paper was then sent to multiple reviewers, the putative institution of origin was indeed found to be a predictor of the final publication recommendation. Some journals have experimented with bringing these findings into practice, but that doesn't work very well. It is only possible to mask the origin of perhaps a third of manuscripts. Most authors present their work not only in the context of a developing field of knowledge, but also within the context of a line of investigation being pursued at their institution. That pattern—and even individual writing styles—may be easily recognized; most simply, an author often cites himself and his immediate collaborators quite frequently in the introduction and in the first few paragraphs of the discussion. If you're close enough to the field to be a good referee, you will often recognize who wrote the paper.

One may also have bias pertaining to the conclusions of the paper; there is a natural tendency to give more

rigorous scrutiny to a paper with which you disagree than to a paper that supports conclusions that are near and dear to your own heart. Several studies have tried to get at this bias; one by Dr. Edzard Ernst (now at the University of Exeter) was published within our pages at the *Journal of Laboratory and Clinical Medicine*. Ernst was at the time the editor of a physical medicine and rehabilitation journal. He devised a manuscript concerning a rehabilitative technique about which there was some disagreement. He deliberately "engineered" into the paper a number of fairly obvious flaws and a number of unusual strengths. He sent the paper to a large number of reviewers, noting whether they were proponents or opponents of the technique under study. He found that referees whose own publications agreed with the conclusions of the paper were more likely to spot the strengths, less likely to spot the weaknesses, and more likely to give an overall favorable publication score than were referees who were in prior disagreement with the paper's conclusions.

About 8 years ago, Fiona Godlee of the *British Medical Journal* reported a study in which 8 substantive errors were deliberately inserted into a manuscript; each was an error that could reasonably be expected to be noticed by a peer reviewer. She sent the paper to a very large number of referees, of whom 221 returned reviews. Sixteen percent of those reviewers didn't catch a single one of the errors; the median reviewer found 2 errors; only a few spotted 5 errors, and no one detected more than 5 errors. This may not be quite as bad as it sounds, because the reviewer is likely to stop looking once enough errors have been found that it's clear the recommendation will be against publication. But even with that caveat in mind, one gets the sense from studies like this that a lot of serious errors slip through peer review.

A common complaint about peer review is that it can be capricious. Once in a while, there may be a reviewer who is capable of cruelty and once in a while there may be an author who

has provoked such a response in many reviewers. But more commonly and more substantively, one may (without malice) get 2 or 3 reviews that differ rather starkly in their evaluation and recommendations. Is that a good thing or a bad thing or a little of each?

Redundancy is a means of improving error detection, and discrepancy may be a sign that redundancy has succeeded. We asked at the Journal of Laboratory and Clinical Medicine just how consistent our reviews were. Most of our manuscripts were sent to 2 referees; they were asked to give their final publication grade for a manuscript on a 5-point scale. At one end of the scale was the recommendation to publish the manuscript without revision; at the other end of the scale was the recommendation to return a manuscript to the author with no opportunity to revise and resubmit. We compared the recommendations of the 2 reviewers for each manuscript returning during a several-month sampling interval. We found that in 36% of the pairings, the referees gave the same final recommendation, another 26% differed by only a single step on the scale, and only 9% differed by more than 2 steps. When we examined the widely discrepant pairs, we found that there was almost always an explanation; the 2 most common were: (a) 1 reviewer noticed a problem that the other missed, and (b) the 2 reviewers noticed the same serious errors but differed in their optimism for repair. In 4% of the discrepant pairs, the 2 reviewers may not have shared the same planetary origin.

## WHERE IS ALL THIS GOING?

In reviewing a number of features of peer review, several of which are descriptors of problems with the process, I think the most important single conclusion is that one should not expect more of peer review than it can really deliver. Peer review is a way of getting advice from workers in the field that can help an editor make a good decision about the acceptance or rejection of a manuscript. As soon as you start expecting it to be the whole

process, or as soon as you start to expect it to do things like detect fraud, disappointment will ensue.

That being said, I think it is quite useful to think about the ways in which peer review might be improved. Some of the potential improvements are in the peer review system itself, and others are more general improvements in the way research is monitored and published, providing tools other than peer review to address the problems that are poorly addressed by referees.

Perhaps one of the biggest things one can do is make the process more open. Traditionally, the identity of reviewers is hidden from the authors of the paper under review; that makes it easier to do a sloppy review or a vituperative one. As an editor, I encouraged reviewers to sign their reviews, but only a few percent did so. If reviews were routinely signed, that would put authors and referees on a more equal footing, a step likely to improve both civility and quality.

One could also open the process beyond the tight little circle of author, referee, and editor. One could make the original submission available as a Web posting, along with the reviews and the author's responses to the reviews. Some journals are already experimenting with this sort of process, and one could imagine even doing it before the final version has been accepted for publication.

During our experience with the occasional fraudster, we were struck that several expressions of concern at several different journals had often been made before the weight of the evidence moved someone to do something. That led us to a certain sympathy for the notion that disclosing peer review to other journals might be a good thing. It could become a routine expectation that authors would disclose the other journals to which they had previously submitted a paper, and that the previous journal would be free to share its review with the editors now considering it.

One could also try to depersonalize peer review a bit. Journals already often try to avoid using reviewers who

are likely to be competitors or collaborators of the authors under scrutiny. Perhaps that can be taken a step further, and a cadre of reviewers could be developed who would have expertise in study design issues and statistical analysis. Using such reviewers for an initial scrutiny of a manuscript might allow a journal to ask only very narrow and focused questions of people who might have conflicts of interest in offering a review.

One could also try to develop good techniques to monitor the process. An editor will certainly often say "Gee, that was a helpful review" or something considerably less friendly. Evaluating the reviews on a systematic basis and getting those evaluations back to the reviewers could help referees to hone their skills and to understand better what it is that the authors and editors need of them.

## YEAH, BUT...

Although it may be possible with these and other tools to make peer review more helpful and more civil, there still is that question of fraud that has appeared a number of times in this discussion. Improving peer review will not be a complete solution to the problem of fraud or to any of a number of other problems that afflict the scientific publication enterprise. It's appropriate to mention a few steps that go beyond peer review per se.

Improving institutional oversight of research is probably the avenue that has the most realistic chance to detect and derail fraud. The challenge in such work is to make the oversight effective while not making it oppressive. If so many validation steps are added that a researcher feels as though he is wearing concrete boots, it may not be such a good thing.

It is a relatively simple matter to require an author to certify that he has the skills and training and facilities to have carried out the research he is describing in a manuscript.

It is already becoming relatively common for journals to require coauthors to accept responsibility for the manuscript and to describe their indi-

vidual contributions. This sort of requirement makes it more awkward to grant a "courtesy" authorship to someone whose contribution was quite oblique.

In discussing one of our fraud cases, we proposed that a guarantee of cooperation in retrospective reanalysis should routinely be solicited. Such a guarantee could have a reasonable time limit (perhaps 5 years) and could promote alternative scientific analysis and interpretation of a given set of data as well as make those data available for examination if irregularities were alleged. As the cost of computer memory goes down, data banking becomes a more realistic consideration.

#### CONCLUSION

Peer review is not really broken, and peer review has not really failed to deliver on a promise. It was a pretty coarse tool to begin with, and it has been blamed for things it cannot fix. It needs to be recognized for what it is and recognized for what it is not. The context in which it functions is a process that has a lot of room for improvement that could remove the unreasonable demands from peer review. Peer review itself could be improved, generally by making it more open and making it more liable to quality control.

To return to my thurophilic metaphor, I think peer review can be likened to Emmenthaler rather than Limburger. But maybe we should aim higher, and try to move from Emmenthaler to Gruyere. It will still be a little bit nutty, but it will be more solid and will have fewer holes.\*

\*Although it is beyond the scope of my address and this essay, a similar concern could be voiced about an increasingly recognized problem: the publication of drug and device studies that are designed with licensing and marketing questions in mind rather than with the most important clinical questions in mind. For this issue, heightened awareness by editors and referees may be more important than structural or procedural changes.

#### Recommended Resources

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Hammerschmidt DE, Franklin M. The limits and power of peer review. *Minn Med.* 2006;89.

Hammerschmidt DE, Gross AG. Allegations of impropriety in manuscripts by Aws S. Salim: examination and withdrawal of journal aegis. The Executive Editorial Committee of the Journal of Laboratory and Clinical Medicine. *J Lab Clin Med.* 1994;123(6): 795-799.

Smith R. Peer review: reform or revolution? [editorial]. *BMI.* 1997; 315:759-760.

**Note:** This editorial is a good overview of the problem of peer review as perceived almost a decade ago; the fact that it is still current speaks to the difficulty of effecting change in a deeply entrenched routine.

## GUIDEBOOK TO BETTER MEDICAL WRITING by Robert L. Iles

"The best basic manual on medical writing. . . everything you need to know about developing a clear persuasive paper that stands a good chance of publication by a peer-reviewed journal." Barbara G. Cox, MedEdit Associates, Gainesville, FL. (amazon.com book review)

"Iles has succeeded in boiling down the essentials of medical writing into a cogent handbook." Linda M. Bonnell, PharmD, *AMWA Journal.*

"A concise, no-nonsense approach. . . provides readers with a series of excellent tips. . . helpful in my own medical writing and consulting service." Thomas Buckingham, MD, Bratislava, Slovak Republic. (amazon.com book review)

"Although the focus is on clinical articles, what Iles has to say applies to most scientific writing. . ." Jude Richard, *CBE Views.*

"I've been a medical writer over 20 years. The book will help me do even better for my clients. Lots of terrific tips and insights." Michele Grygotis, MG Medical Writing.

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## REPORTS FROM OPEN SESSIONS

### HOW TO RECOGNIZE HIGH-QUALITY REVIEWS AND CLINICAL STUDIES

Speaker  
Teresa Rogstad  
Medical Analyst, Hayes, Inc.

By Deborah A. Early, PhD

Teresa Rogstad has been an AMWA member for 3 years. As an employee of Hayes, Inc., she writes about new and emerging health care technologies for health care companies and hospitals. She started her 1-hour-long open session with an interesting quote from Robert Pirsig, *Zen and the Art of Motorcycle Maintenance*: "But even though Quality cannot be defined, you know what Quality is!"

While the session did not deal with any additional aspects of motorcycles, the concept of quality bridges many areas.

Rogstad successfully covered 3 main areas in her presentation:

- Understanding evidence-based medicine (EBM)
- Recognizing high-quality evidence
- Locating high-quality evidence

The definition of EBM that Rogstad provided initially came from the Evidence-Based Medicine Working Group: "A new paradigm for medical practice is emerging. Evidence-based medicine deemphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision making and stresses the examination of evidence from clinical research."<sup>1</sup>

Rogstad explained that in place of intuition clinicians could consider using data; in place of clinical experience they could use synthesized clinical research; and in place of pathophysiology they could use patient-centered outcomes. She explained that the old approaches to medical practice had not been discarded, but deempha-

sized, and that the ideal is not always possible.

Rogstad explained that medical writers should be able to recognize high-quality evidence in the form of 3 factors: strong clinical studies, useful clinical studies, and systematic reviews.

Strong clinical studies (strong in a methodologic sense) can be recognized by examining a number of aspects including, but not limited to, the following:

- Research design
- Study conduct
- Sample size
- Sample selection
- Analysis

A show of hands demonstrated that many in the audience were familiar with the aspects of research design (eg, whether a trial is randomized). Rogstad expanded on conduct by discussing, among other things, whether the trial is blinded and the comparator groups are similar (in terms of clinical history, gender, and demographics). The follow-up can also give an indication of the strength of the study. If few trial participants were seen at the follow-up visit, the results are less reliable. Rogstad explained that optimum sample size can reduce bias, but there is no magic number for sample size. She explained that if the authors report that a power calculation was performed, this is an indication that the investigators were probably careful in the design and analysis. The specifics of how to interpret power calculations were not discussed. Other questions writers can ask to try to establish the quality of trials include whether the outcome measures are defined, whether statistical significance was calculated, whether magnitude of effect was reported, and whether a control for known confounders was undertaken.

Rogstad then moved on to discuss how one can try to identify useful

clinical studies. Writers need to examine factors such as the following, she said:

- Efficacy (whether a product/procedure works in a controlled environment) versus
- Statistical versus clinical significance
- Subgroup analysis
- Short-term/long-term follow-up
- Intermediate outcomes versus health/patient-centered outcomes
- Quality of life/quality-adjusted life-years
- Cost-effectiveness analysis

"In a research setting strict protocols are usually followed, but these may be very difficult or inappropriate to implement in practice, and record-keeping in practice is not always as it is for a trial," said Rogstad. She further explained that there are important differences between clinical and statistical significance and that writers should consider clinically relevant results more useful. A study of a treatment to reduce pain in a chronic condition that may eventually resolve on its own does not require long-term follow-up. On the other hand, for a study of something like pancreatic transplantation, long-term follow-up is useful.

Published systematic reviews are another type of clinical evidence. They are defined by the following:

- Focused study question
- Specific search strategy
- Criteria specified for article selection
- Critical appraisal of studies, including formal quality assessment (analysis)
- Synthesis (may include meta-analysis)

Systematic reviews serve as a foundation for review articles, practice guidelines, and health technology assessments and can provide excellent source material for medical writers. The authors of a systematic review

begin with a focused study question that defines what is important to know and then look for studies that answer that question. The examples Rogstad gave were “Is core decompression more effective than pain medication in delaying hip replacement?” and “Is pancreas transplantation effective in preventing secondary complications from diabetes?”

Writers may need to be able to locate high-quality evidence (clinical literature), not just be able to recognize it. Rogstad commented that writers usually start with review material, and then look for individual studies if necessary. Some writers may never have a need to look for individual studies—but may have to interpret studies identified by others.

Using an example of “total knee replacement” Rogstad showed how to conduct a PubMed search for useful review articles, with an emphasis on systematic reviews. She also showed how relevant practice guidelines and health technology assessments, which ideally are based on systematic reviews, could also be found at other online sites.

Four abstracts describing individual studies on minimally invasive techniques for total knee arthroplasty were also discussed, and the group attempted to identify strengths and weaknesses in the studies by looking at the items Rogstad had discussed, such as sample size, control, follow-up, and whether the analysis was retrospective. This exercise provided an opportunity to illustrate principles with an emphasis on ability to get a global sense of quality rather than analyzing the study in detail. Several questions were raised during the practical part of the session. One member of the audience asked for comment on the “intent-to-treat” analysis. This was considered a better way to analyze the data because it better reflects how patients might respond in practice. Some discussion followed regarding different analytic techniques for dealing with a high loss to follow-up. In response to a question about unlimited analyses, Rogstad remarked that “data dredging is not considered appropriate (subgroups need to be defined ahead of time).” She added, “The more analyses are conducted, the more likely one is to find something

that is statistically significant.” A member of the audience reminded the group that such a result generates a new hypothesis that should be tested.

In closing, Rogstad expressed her hope that the discussion enabled writers to see that there are principles they can use to recognize high-quality clinical evidence. She concluded by once again quoting Pirsig, from *Zen and the Art of Motorcycle Maintenance*, but questioning his premise: “But even though Quality cannot be defined, you know what Quality is!”

#### References

1. Evidence-Based Medicine Working Group. Evidence-based medicine. A new approach to teaching the practice of medicine. *JAMA*. 1992; 268(17):2420-2425.

Deborah Early is a freelance medical writer and president of the AMWA Delaware Valley Chapter.

### HOW TO TALK TO A STATISTICIAN: WHAT TO ASK FOR AND WHAT TO DO IF YOU DON'T GET IT

#### Speaker

Danny A. Benau, PhD  
Associate Professor of Biomedical Writing, University of the Sciences in Philadelphia, Philadelphia PA

By Patricia Rawn, BScPhm, PharmD

In regulatory medical writing, the medical writer and statistician must work as a team. This open session, led by Danny Benau, PhD, described how medical writers can work with statisticians to save time and avoid errors caused by retyping, copying, and pasting data from statistical outputs.

#### SAS: A Brief Background

In order to frame the discussion, Dr.

Benau provided a brief overview of SAS and SAS outputs. SAS is the industry standard software program for statistical analysis, and SAS outputs are data tables produced by statisticians using SAS. Medical writers use these SAS outputs in their reports. The software is referred to simply as “SAS,” or, in Dr. Benau’s words, “SAS stands for SAS!”

#### Medical Writers and Statisticians: A Two-way Street

Medical writers and statisticians have a great deal to offer each other (Table 1).

#### What to Ask for

Dr. Benau outlined 3 simple things that medical writers should request from their statistician:

- List the top 3 adverse events in each treatment group
- Although many writers locate the top 3 adverse events by scanning a

table visually, this method is prone to human error. You can simplify this process by asking your statisti-

**Table 1.** Relationship between statisticians and medical writers

What statisticians can do for medical writers
<ul style="list-style-type: none"> <li>• Provide SAS outputs that will work within the framework of your report</li> <li>• Evaluate whether your proposed analysis is technically feasible</li> <li>• Save you time in retyping or cutting and pasting data</li> </ul>
What medical writers can do for statisticians
<ul style="list-style-type: none"> <li>• Minimize error potential and statistician review time by requesting appropriate SAS outputs</li> <li>• Assist in the development and review of data analysis plans</li> </ul>

cian to write a program to display the top 3 adverse events. You can then convert this table to text for your report. This method reduces time and errors because it eliminates the steps of visually locating these adverse events and manually typing them into your report.

- Include the program and data extraction date in each table  
By asking your statistician to automatically add the program name (ie, the version of SAS being used) and the date of data extraction to every table, you are reducing the risk of accidentally using older data. You can also ask your statistician to tell you whenever the tables are changed so you can update your report.
- Provide a continuous table for in-text use  
SAS inserts page breaks into tables by default. This can lead to unsightly tables with odd gaps. To avoid this problem, ask your statistician to set an infinite or very long (eg, 5 miles) table length. You can

also request customizations such as not inserting percent symbols after each number in a table if these are not desired. This can save you time and reduce the risk that you will introduce an error while reformatting.

### **What You Can Do for Your Statistician**

Dr. Benau emphasized the importance of giving something back to your statistician.

**Reduced review time.** Your statistician is responsible for the data and must review your report to ensure the data are correct. You can greatly reduce the statistician's review time by asking for SAS outputs that closely reflect your requirements, thus minimizing the need to retype or cut and paste data.

**Editorial assistance.** You can also assist your statistician by offering to edit the Data Safety Monitoring Board presentation and the Statistical Analysis Plan. Becoming involved at this early stage will help you establish a relationship with your statistician sooner in the process, provide a useful service for the statistician, and also make your statistician more aware of

your data formatting requirements. This in turn will make it easier to request data outputs in the form you require.

### **Selected Resources**

Dr. Benau recommended the following reference as an excellent, basic introduction to generating high-quality reports with SAS:

SAS® Reporting 101: REPORT, TABULATE, ODS, and Microsoft Office.  
Lauren Haworth, Genentech, Inc.,  
South San Francisco, CA  
([www2.sas.com/proceedings/sugi28/071-28.pdf](http://www2.sas.com/proceedings/sugi28/071-28.pdf))

Other selected resources that Dr. Benau recommended included the following:

SAS citation guide ([www.sas.com/presscenter/guidelines.html](http://www.sas.com/presscenter/guidelines.html))

SAS0174 ODS Technology for Today's Decision Makers  
Sunil Gupta, Gupta Programming,  
Simi Valley, CA  
([www2.sas.com/proceedings/sugi30/260-30.pdf](http://www2.sas.com/proceedings/sugi30/260-30.pdf))

Presentation—Quality Tabular Output via ODS 1  
Brian T. Schellenberger, SAS  
(<http://support.sas.com/rnd/base/topics/odsprinter/qual.pdf>)

Patricia Rawn is a freelance medical writer in Toronto, Ontario.

## **WHAT EMPLOYERS LOOK FOR IN A FREELANCE**

### **Moderator**

Lynne Lederman, PhD  
Freelance Medical Writer,  
Mamaroneck, NY

### **Speakers**

Kevin Flynn, MA  
Senior Vice President, Medical Affairs and Scientific Services, Fusion Medical Education, Wakefield, MA  
Ellen B. Lipman, MS, RT  
Director of Professional Development, American Society of Radiologic Technologists, Albuquerque, NM  
Stephanie G. Phillips, PhD  
President, Project House Inc., Teaneck, NJ  
D.D. Wolohan, BA  
Editor, ASRT Scanner, American Society of Radiologic Technologists, Albuquerque, NM

By Julie M. Longlet

**A**re you wondering how to get your first freelance assignment? Do you already have freelance projects but are confused about what your clients want? In an open session, 4 panelists addressed the hiring of freelance writers, making a good impression as a freelance writer, and nurturing your relationships with your clients.

### **HIRING WRITERS**

Ellen B. Lipman, MS, RT, and D.D. Wolohan, BA, briefed the audience on opportunities for freelance writers at the American Society of Radiologic Technologists (ASRT). The ASRT produces both scholarly publications and a member newsmagazine. Radiologic Technology is the award-winning bimonthly journal that covers all disciplines and specialties within medical

imaging. Radiation Therapist is published twice a year for members specifically interested in radiation therapy. Both publications include peer-reviewed research articles, continuing education articles, and other columns of interest to ASRT members. Ms. Lipman recommended that potential authors first read the guide for authors on the ASRT Web site ([www.asrt.org/content/Publications/ForWriters/Guide\\_For\\_Authors.aspx](http://www.asrt.org/content/Publications/ForWriters/Guide_For_Authors.aspx)). Ms. Lipman requires a curriculum vitae and a writing sample from freelancers who wish to be considered for an assignment. Although she generally selects the topics, writers are welcome to suggest topics relating to trends in medical imaging.

The ASRT Scanner is the award-winning monthly member newsmagazine. Ms. Wolohan looks for writers with knowledge of medical imaging.

An important consideration when writing articles and pitching ideas is that ASRT members like to see themselves represented in the magazine, she added. The primary sections of the magazine include a cover story (1,500-2,000 words), a technology update section (750 words), and a member profile (1,200 words).

### MAKING A GOOD FIRST IMPRESSION

You have identified potential clients and collected your writing samples. How do you make a good first impression with a client? According to Stephanie Phillips, PhD, the first rule is, "Know your customer." Your client has specific needs and wants, and a successful freelance writer will be able to anticipate those. For example, is your client someone who could write it better but doesn't have the time (a "tough cookie")? Or is your client a person who doesn't know or care about the product and just wants something to give to a superior (the "sales type")? Your final product will likely be different depending on the client, said Phillips.

In the same way, you need to know what your client values. For example, does he or she need reassuring? Or is this person more concerned about meeting the project objectives? One way to learn a client's needs is to ask. Not only do you learn valuable information, you are also in a position to explain how you can meet those needs. Phillips reminded attendees that the client is seeking freelance work because he or she lacks the relevant expertise and/or does not have the time or the staff to complete the project.

How do you get that first assignment? Phillips offered the following practical suggestions:

- Identify appropriate clients and send them a well written cover letter and a customized resume, high-quality writing samples, and a recommendation from someone they know, if possible.
- Be available for the first assignment. If you think it is something you cannot do, clarify the parts that

you can do. To receive future assignments, do your best job on the first assignment and do not quit in the middle of it.

- Ask about the budget for this job and whether the job is being put out for a bid, and price accordingly.
- Periodically remind clients of your availability.

Phillips suggested the following tips once you have that first assignment:

- Be sure to get all of the specifications of a project (who is doing the literature search, who is the target audience, what is the deadline).
- Follow the directions you are given and incorporate the requested changes.
- Make deadlines and warn of anticipated delays if you cannot meet the deadline.
- Remember to back up your work frequently, and have a contingency plan if your computer crashes.
- Promote yourself by sending reminders to the client and adding your contact information to your signature.

The 3 best phrases a client can hear are, "Don't worry," "I'll take care of it," and "No problem," said Phillips.

### NURTURING THE CLIENT RELATIONSHIP

There is more to being a freelance writer than producing high-quality, readable projects. Understanding the psychology and group dynamics of your clients is necessary to achieve success as a freelance writer, according to Kevin Flynn, MA. Success includes meeting your clients' expectations of quality, tapping into their core beliefs, and understanding what influences your client to behave in a certain way.

Most medical writers consider factually accurate, grammatically correct, logical articles to be a sign of quality. However, Flynn argued that a high-quality product also includes intangibles, such as what the client thinks they need when they need it. For example, your client may define quality as a "correct interpretation" of the message. But, the interpretation may differ according to the department your client represents, such as marketing, medical affairs, regulatory, or legal. Your work product may need to satisfy all of these points of view.

Second, most clients have core beliefs about assessing the quality of your work that may be affected by personality. One example is the "Groundhog Day" client, who repeatedly makes small changes to the "nearly final"

The following are some common questions that were answered during the session:

- Q:** What if all of my writing samples are considered confidential and/or proprietary?
- A:** It is best not to submit confidential writing samples, even if the sensitive information has been blacked out. One idea is to produce a nonconfidential writing sample for a client. The content of the writing sample is not as important as showing a prospective client that you can write.
- Q:** One of the tips was to give clients periodic reminders that you are available. How often is that?
- A:** It depends on the person. Phillips thought that every couple of months was a good period. Wolohan indicated that since she receives so much e-mail, once a month might be best to get her attention.
- Q:** Where do you find freelance writers?
- A:** The AMWA freelance directory, recommendations from current freelance writers, newspaper ads, and recommendations from AMWA members and their contacts. It helps when writers identify areas of expertise.

A large, stylized graphic of the letters 'Q&A' in a light gray, handwritten font. The 'Q' and 'A' are significantly larger than the ampersand between them. The graphic is positioned in the upper right corner of the Q&A section, partially overlapping the text.

version of your draft, usually at the behest of an unseen supervisor. Beliefs may be affected by training. A client with a PhD degree may favor more scientific information in the article, whereas a client with an MD degree may favor clinical information. Flynn advised that you ask each client what he or she expects to see in the finished product as a way to help address these issues.

Third, understanding the client's political context is a big part of freelance writing. Some of Flynn's examples

caused visible cringing from the audience. Do any of these sound familiar?

- "Sorry, upper management changed things. Again."
- "I didn't say that!"
- "I know I said that, but I changed my mind."
- "That's something you don't need to know right now."

Unfortunately, even understanding all of these dynamics about your client may not result in success. Some clients are disorganized, unappreciative, and

unrealistic. Flynn advised not to let these clients take you away from projects with good clients. Once you find good clients, do everything you can to continue to work with them, such as sending thank-you notes and being available. Freelance writing is a people business and you need to treat it that way, said Flynn.

Julie Longlet is a Senior Science Writer with the American Society of Clinical Oncology, Alexandria, VA.

## WRITING ABOUT HEALTH AND SAFETY AT WORK AND HOME

Moderator

Ada P. Kahn, PhD  
President, Wordscope Associates,  
Evanston, IL

Speakers

Paulette Moulos  
President, Wordscope Associates,  
Evanston, IL  
Sharon Lynn Campbell  
EVP and COO, Safety & Health Programs  
Group, National Safety Council  
Lori A. Gettlefinger  
Marketing Manger, DuPont Medical  
Fabrics

By Ada P. Kahn, PhD

This open session encouraged writers to advocate for safe practices in workplaces and homes. Topics included how to avoid accidents, how to accommodate safety needs of disabled people in workplaces, why protective gear is essential for health care workers, and how stress affects health as well as safety.

Speaking first, Paulette Moulos emphasized how awareness and implementation of safety precautions can reduce preventable accidents. Although media campaigns have promoted seat belt usage, fatalities are statistically high among unbelted teenage drivers. Some young people seem to think it is "cool" to drive around unbelted. Moulos also noted that aging is a key

factor in accidents at home, particularly falls; in workplaces, worker inexperience may contribute to accidents. Writers should emphasize the need for preparedness in homes and workplaces, and advocate for routine checks for hazards and development of emergency plans wherever possible.

Sharon Lynn Campbell urged writers to emphasize the challenges disabled people face on a daily basis. She explained that media that call attention to "super feats" do a disservice to the disabled community. Instead, writers should include the human side of mundane activities such as getting on a bus or trying to visit friends in inaccessible houses. She also suggested developing a roster of experts with disabilities who can speak from experience. Employers should plan for the needs of disabled workers in emergencies by providing such equipment as smoke detectors for the hearing impaired and available evacuation chairs. Plans for evacuation of animals in emergencies should also be considered, said Campbell.

Lori A. Gettlefinger discussed the reasons health care workers need specially designed protective equipment. She noted that the level of protection varies by procedures and potential risks; for example, surgeons need front and back protective gear. Gettlefinger pointed out that recently developed surgical gowns and isolation apparel protect against microorganisms and newly recognized drug-resistant pathogens such as SARS and avian flu.

In selecting protective gear, hospitals and other institutions must strike a balance between protection and comfort of workers. She explained that characteristics of comfortable gear include thickness, flexibility, and appropriate weight of material. Comfort is essential to ensure that equipment will be used appropriately. Personal protective equipment should be selected after a careful review and matching of manufacturer's data and industry standards with immediate needs.

Ada P. Kahn, PhD, highlighted stress as a threat to health and safety. Sources of stress vary between cultures as well as types of work. Culture shock, interpersonal conflicts with work colleagues, job terminations, mergers, gender bias, and retirement are frequent sources of stress. Controlling stress, said Kahn, helps avoid physical effects, particularly a weakened immune system. Constructive suggestions included prioritizing work and home life and reducing clutter to improve efficiency and mental well-being.

Ada Kahn is a freelance writer and the author of *Encyclopedia of Work-Related Injuries, Illnesses and Health Issues* and *Stress A-Z*.

## videos @ [www.amwa.org](http://www.amwa.org)

Three videos from the 2006 Annual Conference are now available on the AMWA Web site. Log on to see the videotaped presentations from Keynote Speaker Dale C. Alverson, MD; the McGovern Award winner, A. John Rush, Jr., MD; and the Alvarez Award winner, Neil Shulman, MD.

# PROJECT MANAGEMENT STRATEGIES FOR MEDICAL WRITERS AND EDITORS

By Candice M. Hughes, PhD  
Hughes BioPharma Advisers LLC, Darien, CT

Medical writers and editors often do not think of themselves as project managers. However, to progress to the next stage, every project that crosses their desks needs to be managed. Thus, “project manager” becomes another of the many hats writers and editors don each day. Conscious, proactive project management improves efficiency, reduces work hours, and increases accuracy.

Variety is one of the most interesting aspects of project management. Responsibilities for editorial project managers (EPMs), the processes they follow, and the internal resources available to them vary widely in different types of companies and even between companies working on similar types of projects. In some companies, the EPM is a staff member, while in others the EPM is a freelance or consultant. (The term freelance will be subsequently used to refer to both freelances and consultants.) The EPM may be an editor/project manager or a writer/editor/project manager. The information conveyed in this article is based on my experience performing editorial project management as a staff member at 4 small to medium-size medical education companies, consulting with a major pharmaceutical company and medical communication companies, and management at a firm that develops pharmaceutical/health care symposia. The ability to adapt and modify processes to fit each situation is the essence of good project management. Use the processes described in this article as a starting point to develop strong, individualized project management procedures.

## MISSION AND GOALS OF THE EDITORIAL PROJECT MANAGER

The mission of each EPM is to shep-

herd his or her project from creation by a writer through a complex series of reviews by topic experts (generally physicians or other health care providers), internal staff, and copyeditors. These reviews are followed by formatting by a graphic designer and additional reviews by topic experts, continuing education (CE) reviewers (as needed), and copyeditors. All of these reviews are supervised by the EPM. Throughout this frequently stressful and difficult process, the EPM ensures that all players work smoothly as a team and maintain good humor. The specific goals of good editorial project management are the following:

- Complete the project on schedule
- Communicate clearly with team members (eg, expert reviewers, copyeditors, graphic designers, account or other staff)
- Anticipate obstacles and find a path around them
- Ensure that the content is clearly written, is interesting to read, is accurate, and incorporates required topics

General project managers may also be responsible for overall project budgeting and staffing but, in my experience, this has not been common for EPMs. At some companies, especially larger ones, EPMs may control the editorial portion of the budget and staff.

The mission and goals of EPMs look simple on paper. However, it is the ferreting out of unspoken desires, meshing of conflicting needs, and coping with day-to-day crises that make achieving the goals a challenge. The application of good project management strategies and tools can aid in overcoming obstacles to ensure an outstanding product is completed on schedule.

## PROJECT INITIATION

Project initiation is one of the most critical information-gathering points for an EPM. This initiation to the project can range from a hurried 5-minute phone call to the EPM to an hour-long interdepartmental meeting. Regardless of how a new project is introduced, the EPM must methodically read down his or her checklist of questions (Table 1) and discuss them with the person initiating the project before beginning work. Without answers to these key

Table 1. Project Initiation Checklist

- ✓ What is the main topic? List any known subtopics.
  - ✓ Who is the target audience?
  - ✓ Is this a continuing education (CE) or promotional project?
  - ✓ If a CE project, has a sponsor (a CE accrediting institution) been selected? If so, what is the name of the institution?
  - ✓ Who is the corporate supporter?
  - ✓ Have faculty been identified, or is the EPM identifying them?
  - ✓ What is the honorarium provided for the faculty? (If applicable)
  - ✓ What format will the program take?
  - ✓ What is the desired length of the program?
  - ✓ What are the start and end dates for the deliverables?
    - Freelances will need to define deliverables
    - Deliverables may be pre-set for inhouse staff; if not, ask
- Additional questions for freelances:
- ✓ What is the fee?
  - ✓ Are services other than project management needed?
  - ✓ Will you be expected to work on-site?
  - ✓ If writing is involved, does this fee include 1 or more rewrites?

questions, the project could have problems from the beginning, resulting in rewriting, time delays, and conflict with account staff, the art department, and other team members.

The key to starting off on the right foot is to thoroughly understand the project.<sup>1</sup> A poorly defined topic or inaccurate specifications can result in disaster. The best defense against these is to proactively ask questions. The EPM should continue to gently drill down to the core issues until topics and specifications are clearly defined and understood or until the person assigning the job acknowledges the information gaps and agrees to obtain the answers before or immediately following project initiation. The EPM must position the clarifying process as a means to achieving an outstanding product because if he or she is perceived as unwilling to cooperate or as a barrier to timely completion of the project, the overall outcome will be negative.

The potential for pitfalls exists throughout the lifespan of the project; some of the most dangerous occur at the project initiation because veering off track at the start makes it nearly impossible to meet anticipated deadlines and the end product may be of poor quality as well as late.

**Pitfall:** There is vagueness or vacillation regarding the main topic or project specifications on the part of the editor, account staff, or other person assigning the project.

**Solution:** Ask probing questions to clarify the project parameters and, if necessary, bring the issue to the attention of more senior management. Freelances may wish to pass on the project if parameters are murky and questions do not yield satisfactory answers.

**Pitfall:** There is dissent regarding the main topic or project specifications among a team of people assigning the job.

**Solution:** Be alert for signs of conflicting wants and needs whenever final sign-off/approval power resides in the

hands of more than 1 person. Seek ways to communicate with the group and guide discussion so issues are resolved before proceeding.

Once the project parameters are understood, the EPM's mission is to plan, communicate, and control. Developing a plan or map of where the project needs to be and when is essential to meeting goals. Communication is equally important. Throughout the project, the EPM should provide feedback to key players and should solicit information from them.<sup>2</sup> Key players may include account staff, the editorial director, and other senior editorial staff. Communication can be oral or by e-mail but should include periodic written status reports to the key players. Control is vital since projects rarely unfold according to the plan or schedule. For example, if a reviewer misses a deadline, the EPM must control the situation by ensuring that the reviewer does provide comments within a day or two. The EPM should then adjust timelines by reducing time allotted for subsequent steps and alert those whose timeline has been shortened so that all work together and the delivery date is met.

#### **DEVELOPMENT OF THE CONTENT OUTLINE**

The next step in the life of the project is the development of an outline of the content. The staff EPM either creates this outline in conjunction with the topic expert or hires a freelance writer to create it with the topic expert. If a freelance EPM has been hired to manage the project and write, then this person would create the outline together with the topic expert. The outline should be reviewed by all persons who will be signing off on the final product, to ensure buy-in from all relevant parties. Some individuals will give little thought to orally expressed concepts but seeing them in writing and being asked to sign off on them increases their attentiveness and improves the quality of their feedback. Once an acceptable outline has been created, a first draft of the manuscript is developed.

#### **DEVELOPMENT OF THE FIRST MANUSCRIPT DRAFT**

The first draft of the manuscript for the project may be created by a freelance writer hired by a staff EPM, a staff writer, or a staff or freelance EPM who doubles as a writer, depending on company resources and structure. If the first draft is developed by a staff or freelance writer, the EPM should clearly communicate the following to the writer:

- Due date
- Topic
- Audience
- Goals and objectives
- Format
- Style
- Program format
- Promotional versus continuing education

Providing this information to freelances in a formal contract or letter of agreement is best. The EPM gives the writer the outline if the writer did not develop it. Some companies may give the freelance writer copies of reference materials, whereas others may expect the freelance to provide these resources. Once the writer clearly understands the project and work has begun, regular communication regarding progress toward the deadline and discussion of obstacles is important. If the EPM has not worked with the freelance previously, the EPM may wish to review the first few pages of the first draft to ensure that the writer has understood the assignment and that the quality of the work matches expectations.

#### **REVIEW OF THE FIRST DRAFT**

All persons who have final sign-off authority (including topic experts) should review the first draft. In handing off the manuscript to each person for review, the EPM should emphasize that this is the reviewer's primary opportunity to make substantial content changes, as the next major review (layout, the stage after the graphic artist has organized the content in a design program) should be reserved for minor text or formatting changes.

Asking all internal reviewers to sign their name and date the copy and/or tracking sheet helps encourage them to take ownership for the content. Written comments or statements regarding acceptance of content from external reviewers are saved in case the information is needed to support later decisions.

During this stage, parameters may be reassessed; this is common in the lifespan of any project. J. Davidson Frame, a dean and professor of project management at the University of Management and Technology, describes the re-evaluation of projects as, "...a natural occurrence referred to as the learning effect."<sup>3</sup> He explains that a person's vision of a project sharpens as it proceeds along the development path. However, he emphasizes that the learning effect cannot be allowed to proceed unchecked. Regardless of the cause of the change in direction, the EPM needs to assess the rationale behind the proposed changes and consider how these changes, if made, will impact the timeline. To determine the impact, the EPM should first identify salvageable content and assess the need for new content. He or she can then develop at least 2 alternative scenarios for completion of the project that highlight changes in cost and the timeline and compare them with the parameters of the original project timeline and specifications. The next step is to take the scenario analyses to the decision-maker(s) and gain acceptance for a given scenario before moving forward with it. The challenge is to present the analyses in such a way that the decision-maker(s) and other reviewers understand and accept the rationale for the change in timeline and/or content direction, should that be necessary. The EPM should enumerate all important external influences for the decision-maker(s) and discuss the relative importance of these influences. Pitfalls are also possible at this stage of the process.

**Pitfall:** Input from reviewers' conflicts.  
**Solution:** Minor conflict can be handled by speaking one-on-one with

each reviewer to try to identify the rationale behind the comments. In deciding which changes to incorporate when conflict exists, the EPM needs to weigh the authority of each reviewer in guiding the content. Major conflict may require a meeting with inhouse reviewers and, if necessary, a conference call that includes external reviewers. Freelance EPMs who work off-site may wish to request a face-to-face meeting with their client or, if that is not feasible, a conference call. Every attempt should be made to reconcile conflicting opinions, but if that is not possible, a single authority figure should be identified who can endorse a revised plan of action.

**Pitfall:** A dramatic change occurs in the direction of the content or in the specifications of the project. On occasion, this type of change is dictated by external events, such as newly published data or a revised package insert. At other times, the change in direction arises simply because reviewers had not adequately thought out their needs at the initiation of the project. Seeing their concepts in typeface triggers brainstorming, a new focus, and rewriting of the entire draft.  
**Solution:** Identify the rationale behind the change. If change is necessary, gain agreement on the new timeline.

#### **COPYEDITING OF THE MANUSCRIPT**

Once the content for the manuscript has been finalized, the EPM passes the project to the copyeditor, who reviews the document and the previous versions with reviewer comments to ensure that all the comments have been addressed. Additionally, the copyeditor assesses the general flow and determines that no copy has been dropped during editing. If the project is a CE course, the copyeditor should review the questions to ensure that the answers are still evident in the text. If rewriting has been extensive, errors may have been introduced. The more changes that reviewers have made, the greater the chance that errors were introduced, particularly under timeline pressures. The copyeditor should

review the content carefully to make sure that no material was overlooked or entered incorrectly during what is often an intense rush to move the project to the layout phase (Table 2).

The EPM and the copyeditor should keep communication lines open and discuss any important changes before implementation. Frequent communication will make the review smoother and more efficient, allowing the copyeditor to focus on areas that need work at that time and to postpone work on areas that are less important or are subject to change.

**Table 2.** Copyeditor Checks at Final Manuscript Stage

- ✓ Look for missing information
  - Examples include continuing education (CE) disclosures, disclaimers, self-tests, and evaluations (compare with recent printed pieces by the same CE provider or use established template)
- ✓ Determine that the answers to the self-test questions are evident in the content; if unsure, query editor/writer
- ✓ Check all dosages against package inserts or verified source to ensure accuracy
- ✓ Examine references and determine whether all references
  - Are complete
  - Are written according to style 4 (could also be the company's house style or a journal specific style)
  - Match the text
    - Tip: Watch out for situations where the text states, "In this study, Smith and colleagues found..." but the reference is Jones, et al
  - Are correctly numbered (remove text placeholders before layout)
- ✓ Perform a cold read for general sense and flow
- ✓ Check faculty titles and affiliations against verified source
- ✓ Look for misspellings not picked up by spell check software and for grammatical errors

**Pitfall:** Poor communication between the EPM and the copyeditor results in inefficient work or lack of understanding of timelines that delays progression to the layout stage.

**Solution:** Engage copyeditor in a dialogue regarding project parameters and timeline.

**Pitfall:** Lack of global work prioritization leads to the copyeditor not having time available to work on the project.

**Solution:** Discuss the situation with more senior staff such as the editorial director.

When an error-free version of the manuscript has been created, it is sent to the topic experts to approve. The manuscript can be sent to CE reviewers at the CE accrediting institution at this stage or at the next stage. When the final manuscript has been developed and all reviewers have signed off, the project can move to the layout stage.

### LAYOUT STAGE

The layout stage begins when the EPM passes the final manuscript to the art department. During the hand-off process, the EPM briefly reviews the project with the designer, clarifies any unusual formatting needs and, if necessary, highlights areas with missing information, while providing a date by which the missing information is expected. Generally, it is best not to have missing information at this stage. However, this may be unavoidable in some situations. Upon receiving the first layout from the art department, the EPM checks the following:

- The first layout against the final manuscript
- All figures and tables against original version of each
- General flow, readability, and attractiveness

The copyeditor also checks the layout content against contact information provided by expert reviewers (including name, title, and institution), e-mails from reviewers with key data, written communications from other

team members, and other information provided by the EPM. The copyeditor should pay special attention to symbols, which often drop out or change during the layout process. The layout should be sent for internal and external reviews (including the topic expert and CE reviewer). The precise timing of these reviews depends on the overall timeline. The optimal situation is for the editorial and art staff to perform some basic cleanup of the layout before sending it out for review. However, the copyeditor should not devote large amounts of time to fine-tuning the layout before review, as the copy could change.

Note that at the layout stage, the timeline will be affected even more severely by major content changes than it was at the manuscript stage because of the time that has been invested by staff in several departments, including art and editorial. In the worst-case scenario, the EPM may need to start over by returning to the manuscript stage. Before making major content changes, the EPM should convene a meeting or conference call with all the reviewers (including topic experts) to discuss their changes and explore the rationale behind them. It may be possible to reduce the number of changes in the interest of decreasing the impact on the timeline. Minor changes can be addressed on an individual basis as needed.

**Pitfall:** The designer misunderstood the formatting style for the piece.

**Solution:** This situation is usually easily remedied by speaking with the designer and, if necessary, providing printed examples of similar jobs.

**Pitfall:** One or more reviewers request major content changes. This situation can arise because some reviewers do not focus on the content until it seems "official" (ie, until it has the appearance of a printed piece).

**Solution:** If a similar problem has occurred before with this reviewer or the EPM has noticed signs of inattention (such as few comments on drafts), the EPM should intervene early by tak-

ing steps to focus the reviewer's attention on the content. Before the piece moves out of layout stage, all reviewers, including topic experts and CE reviewers, need to sign off.

### FINAL PRE-PRESS CHECKS

Once any content issues have been resolved, the EPM reads through the piece once more and edits it for optimal content flow. Additionally, the EPM checks for missing content or errors and ensures that figure and table placement is correct. All internal and external reviews, including the CE institution's review, should have been completed and any changes incorporated.

At this stage, the EPM discusses the job with the copyeditor and the designer to ensure that his/her reviews and changes are complete. Finally, the EPM checks whether revisions are being made to any other projects within the company that might have an impact on the current project. This check is critical if the current project is part of a multicomponent program under development. If no further changes or reviews are needed, the piece can be sent to the printer.

Sending the piece to the printer is a major accomplishment on the timeline. Once this occurs, the project is nearly complete. A sample copy (termed an iris) that shows what the final printed piece will look like is sent from the printer to the designer who provides this version to the EPM for review. Both the EPM and the copyeditor should read the iris through once. Special points to focus on include symbol changes or dropouts and rebreaking of lines (termed re-ragging). If the EPM or copyeditor finds any differences between the copy sent to the printer and the copy the printer sent back (the iris), then the iris must be marked to denote the changes necessary to make the 2 versions match. Reviews by other staff such as the account executive or editorial director may be required. All reviews of the iris should be completed within 1 day. The marked copy is sent to the printer. If changes were made, the printer sends

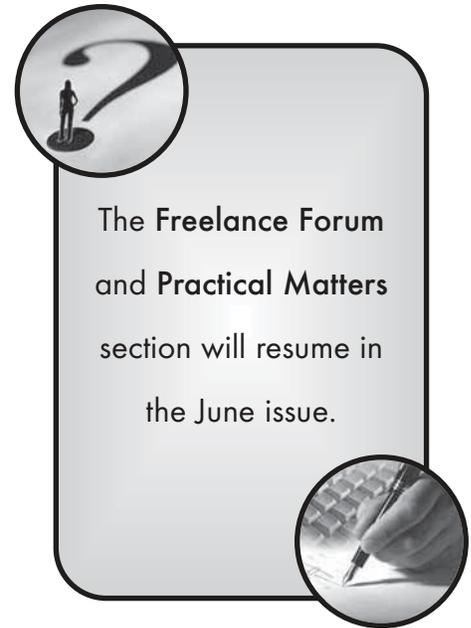
a revised copy to be checked. Note that some printers may provide the first on-press copy for review rather than a pre-press sample. Once the copy is correct, the piece is printed and distributed. After a brief pat on the back, the EPM shifts his or her focus to the next project.

### CONCLUSION

Editorial project managers are the driving force behind content development. Whether staff members, freelancers, or consultants, they are responsible for managing the process of turning a concept into a final produced piece that could be print, CD, video, or Web-based. The challenge is that they must accomplish this on an often intense schedule, while overcoming multiple obstacles and delivering high-quality work. As described in this article, the keys to meeting this challenge are to plan, communicate, and control during every stage of the project.

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**Expert Link** is a new, online directory of child health experts based at the nation's children's hospitals. A product of the National Association of Children's Hospitals and Related Institutions it's designed especially for professional news media. **Expert Link** is searchable by state, an expert's media experience and foreign language skills, and specialty areas such as asthma, obesity and cancer. With a few clicks, you can access information on pediatric specialists, researchers and other child health professionals and how to contact them through hospital public relations contacts.

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## Oncology Basics

### Part II. Targeted Therapies

By MaryAnn Foote PhD, and Miguel Bronchud, MD  
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#### Abstract

Selecting the correct targets for cancer therapy can make an important difference in a patient's clinical outcome. Targeted therapies attack tumors specifically and either do not harm normal tissues or harms them less than traditional cancer therapies. Several categories of targeted therapies have been identified, including antiangiogenesis factors and monoclonal antibodies. Some targeted therapies have been approved for marketing, and many others are in various phases of nonclinical and clinical development. This article is the second in a series discussing basic information about cancer and its treatment.

#### Introduction

Part I of this 2-part series<sup>1</sup> presented basic information about cancer and described a variety of methods to rid the patient's body of cancer cells, including surgery, chemotherapy, and radiation therapy. These techniques are very effective in most cases, but by their very nature are imprecise. It is difficult to be sure that all cancer cells have been removed during surgery (ie, that clean margins have been achieved) and nearly impossible to detect microscopic cancer cells that have already spread to other parts of the body through the lymphatic system or circulatory system. Both chemotherapy and radiation therapy target rapidly dividing cells, which include both cancer cells and healthy proliferating cells (such as hair follicles, bone marrow, and the lining of the mouth). Because of this, alopecia, anemia, or mucositis may develop when healthy cells are subjected to chemotherapy or radiation therapy. Another serious side effect of chemotherapy or radiation therapy is neutropenia, which can predispose a patient to dangerous infections. Because of this imprecise and indiscriminate aspect of chemotherapy and radiation therapy, oncologists have long searched for ways to kill tumor cells but spare normal cells. Targeted cancer therapies use drugs that block the growth and spread of cancer by interfering with specific molecules, pathways, or processes in carcinogenesis and tumor growth.

This article discusses the basics of targeted cancer therapies. As with all articles in the Science Series, underlined words are defined further in the glossary, and interested readers are encouraged to use cited references and other sources to learn more about this new, exciting, but complex

topic. It may be useful to refer to the glossary that accompanies Part I, as most terms defined in that article are not defined here.

#### Definition of Targeted Therapy

The goal of targeted therapy is to specifically interrupt some aspect of the cancer cell's life cycle while not interfering with normal cells. Targeted therapies are often gene-based or protein-based treatments and typically have fewer side effects than traditional therapies. Many targeted therapies have been shown to be extremely effective in treating specific forms of cancer. Targeted therapies are not new or unique to oncology: they have an established utility in several clinical settings, including asthma (antitumor necrosis factor [TNF]) and osteoporosis (bone-targeting nanocapsules of liposomes). Hormone therapies, such as antiestrogens (eg, tamoxifen) or inhibitors of testosterone production (eg, leuprolide) have been used successfully in the treatment of patients with breast cancer or prostate cancer, respectively, for decades. New targeted therapies, however, are meant to be different because they preferentially target the tumor, rather than normal tissue, and because they are designed to be selective for the specific make-up of a given cancer, hitting those molecular targets that are principally responsible for the malignant phenotype of the cancer cells.

During the past 3 decades, scientists have learned much about the molecular aspects of cancer. More than 300 genes and their protein products have been identified and are known to be directly or indirectly associated with the development of cancer.<sup>2</sup> Using this information, scientists are now in the process of exploring the roles of these molecular, gene, or protein markers in the diagnosis, prognosis, and treatment of cancer. These markers are often referred to as tumor markers. Tumor markers include circulating cancer markers (proteins most often found in the blood but sometimes in urine or tissue samples) and genetic markers (derived from cancer-associated genes or from DNA extracted from tumors with chromosomal instability) (Tables 1 and 2).<sup>3,4</sup> Some of the best-known hereditary genetic markers are found in breast cancers. BRCA1 and BRCA2 are breast cancer susceptibility genes, the mutant forms of which predispose to both breast and ovarian cancers (Table 3).<sup>5</sup> These 2 genes are found on 2 different chromosomes.

It should be noted, however, that in spite of much work and expert panel reviews, very few markers are reliable and definitive for cancer.<sup>6</sup> Rather than being used in the diagnosis of cancer, tumor markers are most often used to track the course of a cancer after it develops. We have introduced the concept of tumor markers to illustrate that cancer therapy can be made selective, ie, can be made to target the overproduction of molecules that are involved in carcinogenesis.

### How Targeted Cancer Therapies Work

Targeted cancer therapies work by interfering with the growth and division of cancer cells. Different therapies act at different points during the growth and development of cancer cells. Some targeted therapies act on proteins involved in signaling processes. By blocking the signals that instruct cancer cells to divide in an unregulated manner, the targeted therapies can help stop the growth of a tumor. Several targeted therapy agents have been approved by the United States Food and Drug Administration (FDA) for marketing in the United States (Table 4). One of the first targeted therapy agents developed was imatinib mesylate, and it established a new paradigm for cancer treatment (see sidebar<sup>7</sup> on page 27).

The novelty of the field and its technologies and the intricacies of the pathways make the topic of targeted therapies very complex. Readers who are interested in further research should review the references listed at the end of the article.

### Broad Classification of Targeted Therapies

#### **Oncogene Inhibitors**

Most cells carry proto-oncogenes that oversee cell growth and other cellular functions. Scientists have mapped the approximately 30,000 genes that are present in human DNA, and approximately 100 of these genes are now known to be proto-oncogenes.<sup>8</sup> If a proto-oncogene is broken or damaged, it becomes an oncogene and instructs the cell to multiply rapidly, a hallmark of malignant cells. Currently, oncogene inhibitors include tyrosine kinase inhibitors, epidermal growth factor receptor (EGFR) inhibitors, and vascular endothelial growth factor (VEGF) inhibitors. Other oncogene inhibitors, interfering with other growth factor receptor families or other relevant intracellular molecular targets, such as specific transcription factors, are under study.

Several of the targeted therapy agents approved for marketing in the United States are oncogene inhibitors (eg, imatinib mesylate, erlotinib, and trastuzumab) (Table 4). Both small molecules and monoclonal antibodies can act as oncogene inhibitors. Antisense oligonucleotides also can act as oncogene inhibitors, but none has been approved for clinical use in cancer therapy at the time of this writing.

**Table 1.** Some commonly used circulating cancer markers<sup>3</sup>

Marker	Use	Tumor Types
Alpha-fetoprotein (AFP)	Diagnosis, tracking	Testicular, liver
Carcinoembryonic antigen (CEA)	Tracking	Gastrointestinal, colorectal, breast
Human chorionic gonadotropin (hCG)	Tracking	Gestational trophoblastic; germ cell
Monoclonal immunoglobulin protein (M)	Diagnosis, tracking	Multiple myeloma
Prostate-specific antigen (PSA)	Diagnosis, tracking	Prostate
CA-125	Tracking	Ovarian
CA-19.9	Tracking	Pancreatic, gastrointestinal

**Table 2.** Some genetic markers (somatic mutations or chromosomal translocations) associated with specific cancers<sup>4</sup>

Marker	Chromosome Location	Tumor Types Associated with Mutations
APC	5q21	Familial adenomatous polyposis (FAP), colorectal cancer
BCL2	18q21	Non-Hodgkin's lymphomas, acute leukemias
BCL6	3q27	Lymphomas; particularly associated with the transformation of follicular lymphomas to diffuse large-cell lymphoma
BCL1*, PRAD1, CCND1	11q13	Lymphoma and breast and head and neck cancers
BCR-ABL	t(9;22)(q34;q11)	Chronic myeloid leukemia ("t" refers to translocation of the gene from chromosome 9 to chromosome 22)
FLT3	13q12	Acute myeloid leukemia (in 70-100% of patients)
HER-2/neu	17q21	Breast and endometrial cancers
MYC	8q24	Lymphoma, small cell lung cancer, ovarian and breast cancers, and neuroblastomas in children
PTEN	10q23.3	Melanoma; glioma; and renal cell, hepatocellular, cervical, head and neck, breast, and prostate cancers
REL	2p15;14	Lymphomas, including a subset of Hodgkin's lymphoma and diffuse large-cell lymphoma
RET	10q11.2	Multiple endocrine neoplasia type 2, familial medullary thyroid cancer
TP53	17p13.1	Almost all tumor types, especially cancers of the colon, rectum, breast, lung, esophagus, stomach, liver, ovary, and urinary bladder

\*The BCL1 gene codes for cyclin D1, a marker that enables a differential diagnosis of mantle cell lymphoma (a particularly aggressive form of lymphoma), being positive in more than 80% of cases.

**Table 3.** BRCA1 and BRCA2 in breast cancer<sup>6</sup>

Gene	Chromosome Location	Associated Cancers	Associated Increased Risks	Prevalences
BRCA1	17q12-21	Hereditary breast and ovarian cancer	Prostate, colon, liver, and bone cancers	White population, approximately 1% Black population, <1% Familial breast cancer population, 20-40% Women by age 32 years, 12%
BRCA2	13q12-13	Hereditary breast and ovarian cancer, male breast cancer	Melanoma and cancers of the pancreas, gallbladder, pharynx, stomach, and prostate	White population, approximately 3% Black population, 1% Familial breast cancer population, 10-30% All breast cancers, <2% All male breast cancers, 14%

**Table 4.** Targeted therapy agents approved by the United States Food and Drug Administration\*

Generic Name	Trade Name	Target	Indication
bevacizumab	Avastin	Monoclonal antibody that inhibits VEGF receptor	Colorectal cancer
bortezomib	Velcade	Inhibitor of the 26S proteasome	Multiple myeloma
cetuximab	Erbix	Monoclonal antibody that targets EGFR receptor	Colorectal cancer
erlotinib	Tarceva	Inhibitor of EGFR and tyrosine kinase	Nonsmall-cell lung cancer
gefitinib	Iressa	Inhibitor of EGFR and tyrosine kinase	Nonsmall-cell lung cancer, prostate cancer, head and neck cancer
imatinib mesylate	Gleevec	Small molecule that inhibits tyrosine kinase	Chronic myeloid leukemia, gastrointestinal stromal tumors
rituximab	Mabthera, Rituxin	CD-20 antigen	Some types of B-cell non-Hodgkin's lymphoma
trastuzumab	Herceptin	Monoclonal antibody that binds HER-2/neu receptor	Breast cancer, nonsmall-cell lung cancer

\*Further information is available in the package inserts for each product, which are provided by the manufacturer.

EGFR = epidermal growth factor receptor, and VEGF = vascular endothelial growth factor.

### Apoptosis Inducers

Most normal cells are genetically programmed to die, a process called apoptosis. This programmed cell death occurs to allow healthy cells to replace old or diseased cells or to simply eliminate unwanted superfluous cells during growth and development. In contrast, cancer cells have “learned” to evade normal apoptosis and continue to survive, increasing the size of a tumor and allowing it to metastasize. A key to this evasion is an increase in proteins, particularly Bcl-2. Drugs that inhibit the production of Bcl-2 promote apoptosis. Apoptosis-inducing therapies block enzymes that help cancer cells survive and work to make cancer cells more vulnerable to chemotherapy. Other drugs in nonclinical development can trigger the process of apoptosis after binding to so-called death receptors on cell membranes, but they are also potentially very toxic to some normal cells.

### Cancer Vaccines

An intriguing hypothesis is the use of tumor vaccines to induce cancer-specific immune responses in the host (the patient). Vaccines traditionally have been used to prevent illness, such as rubella (German measles), and work on the concept of acquired immunity. Researchers are exploring ways to create a vaccine using molecules extracted from a patient's tumor. The extracted molecules would be injected into the patient, along with an immunostimulant such as interleukin-2 (IL-2). After injection of the molecules, the patient's immune system is stimulated and destroys the antigen, the extracted molecules. The memory cells of the immune system are thus

primed to recognize the same antigen in other tumor cells in the body and to destroy them using normal immune system mechanisms, effectively ridding the body of the tumor. Although some success has been achieved in clinical trials with this approach for some cancer types (colorectal cancer and melanoma), no cancer vaccine has received marketing approval, except for vaccines against a carcinogenic virus such as the hepatitis B virus (a virus that can lead to hepatocarcinomas or primary cancers of the liver). Recently, a vaccine against human papillomavirus, the major cause of cervical cancer and genital warts, has received FDA approval. These antiviral vaccines prevent rather than cure cancer.

### Angiogenesis Inhibitors

Tumors can become clinically relevant, ie, grow to larger

than 1 cubic millimeter, only if they have a supply of nutrients and oxygen and a mechanism to remove waste products and carbon dioxide. In other words, a tumor grows if it can develop a blood supply, a process known as angiogenesis, first defined by Folkman.<sup>9</sup> A blood supply also allows tumor cells to spread and develop into distant metastases. Angiogenesis is driven by the production of proangiogenesis factors (factors that stimulate the production of new blood vessels [capillaries]) that overcome the effects of antiangiogenesis factors (factors that inhibit the production of new capillaries). In a healthy human, angiogenesis occurs during normal tissue growth and repair and pregnancy. Dysregulation of angiogenesis, or the inappropriate growth of new blood vessels, occurs in rheumatoid arthritis, cirrhosis, cardiovascular disease, diabetic retinopathy, and cancer.

Proangiogenesis factors include VEGF (seemingly the primary factor), the fibroblast growth factor (FGF) family, platelet-derived endothelial cell growth factor, and tumor necrosis factor (TNF)  $\alpha$  and  $\beta$ . Antiangiogenesis factors include endostatin, angiostatin, interferons, and thrombospondin-1 and 2. Of all the proangiogenesis factors discovered to date, the VEGF family is the best-studied.<sup>10</sup> VEGF is secreted by almost all cell types in the body and is overexpressed in most malignant tumors.<sup>11</sup> When VEGF joins with a receptor, a number of effects can occur, including increased endothelial cell production, increased survival of endothelial cells through inhibiting of apoptosis, and reprogramming of gene expression. Antiangiogenesis products work by rather different mechanisms:

- Targeting VEGF or VEGF receptors
- Reducing VEGF expression on cell membranes by fusion proteins
- Using ribozymes to decrease receptor expression and activation
- Inhibiting tyrosine kinase to reduce receptor activation and downstream signaling

Antiangiogenic agents also can be monoclonal antibodies or small molecules, such as the therapeutic molecule bevacizumab, which targets VEGF.

It should be noted that antiangiogenesis research is still quite young, with only about 5 years of clinical studies completed. Early studies have shown that antiangiogenic agents can have significant toxicities. Antiangiogenesis therapies continue to be pursued in spite of these toxicities, as many researchers believe that control of angiogenesis is one of the most promising targeted therapies, particularly after primary cancer surgery (eg, mastectomy for breast cancer or hemicolectomy for colon cancer). By targeting the angiogenesis process, it may be possible to delay or even prevent the growth of micrometastases throughout the body after primary cancer surgery, ie, in the adjuvant setting.

### **Monoclonal Antibodies**

Treatment with monoclonal antibodies has become more common in recent years, as several such therapies have received marketing approval. These agents include rituximab, alemtuzumab, and gemtuzumab for some types of leukemia and lymphoma and trastuzumab and cetuximab for solid tumors.

Therapeutic monoclonal antibodies can exert their effects through several mechanisms, using a variety of structural components. Some monoclonal antibodies block the interaction of important proteins or block the binding of a ligand (eg, a growth factor) to a receptor, thus, mimicking ligand binding, which in turn alters signaling within the cell. Other monoclonal antibodies directly kill tumor cells, alone or with cytotoxic agents or radioisotopes.

### **Gene Therapy**

Gene therapy is broadly defined as the transfer of genetic material into a cell to transiently or permanently alter the cell's phenotype. The goal of gene therapy in the oncology setting is to alter the genetic makeup of the tumor or the entire body to halt or slow the disease process.

Gene therapy is accomplished by inserting a desirable gene into the DNA of cells from the patient, thus reprogramming the progeny of the original transfected cells. The reprogramming can include enabling the cells to produce large amounts of specific proteins. Some research in gene therapy includes increasing the production of TNF for the treatment of metastatic melanoma and increasing the production of IL-12 for the treatment of renal cell cancer. Another approach is to provide normal cells with increased protection from chemotherapy drugs or to increase the sensitivity of tumor cells to such drugs.

### **Some Common Cancers Treated with Targeted Therapies**

Patients with some common cancers are experiencing the benefits of targeted therapies that have been approved for marketing by regulatory agencies. The information provided in this section is not meant to suggest possible therapies, and other treatment modalities are available and effective for these types of cancer. In addition to the approved targeted therapy agents, many other targeted therapies are in various stages of clinical development. We have chosen to focus here on only marketed products for which extensive peer-reviewed literature is available.

### **Breast Cancer**

Breast cancers often contain receptors for estrogen, progesterone, or both; such cancers are labeled as receptor positive and require one or both of these hormones to grow. The more hormone receptors a tumor contains, the more sensitive it is to estrogens or progesterone used to treat other conditions, and thus, these agents should be avoided in women with breast cancer shown to have hormone receptors. Tumors with an abundance of these receptors often

are less virulent than other tumors, and patients with these types of tumors often have a better prognosis than patients with tumors with few receptors. One targeted therapy available for the treatment of breast cancer is tamoxifen, an estrogen blocker that is a partial agonist/antagonist. Patients who take tamoxifen after initial treatment for breast cancer are known to have less chance of cancer recurrence or spread to the contralateral breast or distant sites; however, tamoxifen should be taken for 5 years or less in sequence with other estrogen inhibitors (such as the so-called peripheral aromatase inhibitors). Treatment should not continue beyond 5 years because after this amount of time, initially responsive tumors may become greatly resistant to tamoxifen, negating its good effects on tumor reduction, serum cholesterol, and bone density.<sup>12</sup>

When patients must stop therapy with tamoxifen, another targeted therapy, an aromatase inhibitor such as anastrozole, can be used. Aromatase inhibitors also act by lowering the amount of estrogen in a woman's body that is produced outside the ovaries, such as in muscle and fat tissues.<sup>13</sup>

Breast cancer cells also express HER-2 and those breast cancer cells that overexpress HER-2 can be extremely virulent. HER-2 is not an estrogen-receptor gene but is a member of the EGFR superfamily whose molecular ligand is not known. It could, in fact, turn out to be a receptor coactivator rather than a true surface receptor for an extracellular growth factor. An anti-HER-2-humanized monoclonal antibody, trastuzumab, was designed to disrupt the tumor cell's ability to multiply by disabling the errant HER-2 gene.<sup>14</sup> Targeted therapy with trastuzumab has been used for patients with early-stage and advanced metastatic breast cancer and is being investigated in the adjuvant setting.

### **Colorectal Cancer**

While surgery is the preferred treatment for localized colorectal cancer, 2 monoclonal antibodies currently are marketed for the treatment of advanced or metastatic colorectal cancer. As discussed earlier, bevacizumab is a monoclonal antibody that targets VEGF. The FDA has approved bevacizumab in combination with 5-fluorouracil for the initial treatment of patients with metastatic colorectal cancer.<sup>15</sup> Bevacizumab acts as an antiangiogenic therapy, attacking new blood vessels the tumor has formed, thus, cutting off its supply of nutrients.

Cetuximab is another monoclonal antibody directed against human epidermal growth factor receptor (HER-1/EGFR). Cetuximab also can cause the patient's immune system to recognize the cancer cells as foreign and attack them.<sup>16</sup> Cetuximab is given either alone or in conjunction with chemotherapy agents.

### **Lung Cancer**

There are 2 major types of lung cancer: small cell lung cancer (SCLC) and nonsmall-cell lung cancer (NSCLC). Approximately 80% percent of people with lung cancer have

NSCLC, a form that generally grows more slowly than SCLC. Because the lungs are so vascular, lung cancers are prone to metastases and are difficult to treat.

Gefitinib and erlotinib are drugs used to treat lung cancers; they target the EGFR gene mutation and can cause apoptosis, block action of tyrosine kinase, or both. Another form of targeted therapy is photodynamic therapy (PDT), approved by the FDA in 1998 for the treatment of early-stage NSCLC. This treatment involves the use of a photosensitizing agent (porfimer sodium), which is absorbed by the cancer cells. When these treated cancer cells are exposed to a special laser light about 48 hours after porfimer sodium has been injected, they are destroyed.

### **Summary**

Traditional methods for treating cancer—chemotherapy, radiation therapy, and surgery—have been reasonably successful but are not without limitations. Traditional methods often are unable to disable all malignant cells because the treatments are too toxic for patients or because small clusters of drug-resistant malignant cells seed throughout the patient's body. Advances in the understanding of cancer cell biology and molecular biology have allowed the development of targeted therapies, or therapeutic agents that pinpoint specific tumor cells but ignore or at least minimally damage normal cells. Many targeted therapies remain concepts, such as gene therapy, while others, such as antiangiogenic agents, have received marketing approval for use in patients with cancer. We firmly believe that new targeted therapies, probably in combinations suited to each individual cancer, will be developed only when researchers begin to think differently about cancer therapeutics, when biopharmaceutical companies commit the resources necessary to develop new therapeutics that are unlike the currently available products, and when patients willingly allow themselves to be part of new clinical trial procedures.

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## An aside on drug development: Imatinib as a paradigm for cancer therapy<sup>7</sup>

Imatinib mesylate was a dramatic success for the first wave of molecularly targeted therapies. A precursor compound was identified in the late 1980s, but it had low potency and poor specificity. Nevertheless, the precursor molecule was the starting point for the synthesis of imatinib mesylate, a potent inhibitor of BCR-ABL, a fusion protein tyrosine kinase found in chronic myeloid leukemia (CML). CML is a clonal hematopoietic stem cell disorder with 3 distinct phases: chronic, accelerated, and blast. Progression of CML through the 3 clinical phases is characterized at the molecular level by an accumulation of abnormalities that eventually leave the cells unable to differentiate normally. Chief among these abnormalities is the BCR-ABL fusion protein, formed by a reciprocal translocation between the long arms of chromosomes 9 and 22, t(9;22)(q34;q11). The resultant translocation is commonly referred to as the Philadelphia chromosome.

BCR-ABL is crucial for the pathogenesis of CML, activating a variety of intracellular signaling pathways that lead to alterations in cell proliferation, adhesion, and survival. BCR-ABL was an ideal target for treatment of the high proportion of patients who have the corresponding genetic abnormality. Imatinib entered phase 1 trials, initially for patients with chronic phase CML for whom therapy with interferon- $\alpha$  had failed. In the initial trial, a complete hematologic response was achieved in 98% of the patients (53 of 54), and this response was maintained in 96% of the patients (51 of 53). The drug was extremely well tolerated and it had a half-life of 13 to 16 hours, sufficiently

long to permit once-daily oral dosing.

With such impressive levels of activity in patients with chronic phase CML, studies were started to include patients with CML in accelerated phase and blast crisis and also patients with relapsed or refractory Philadelphia chromosome-positive acute lymphocytic leukemia. Response rates of 55% were obtained in both patient groups, but these responses tended not to be durable. Patients with CML in blast crisis did better, with 18% having remission and continuing treatment with imatinib for as long as 1 year, but nearly all patients with the lymphoid phenotype had relapse between 1 and 4 months. In phase 2 studies, imatinib was tested further in patients with interferon-refractory disease or disease in accelerated phase or blast crisis, confirming the pattern of response seen in the phase 1 studies. These studies formed the basis for accelerated FDA approval of imatinib for the first-line treatment of patients with CML in December 2002.

The efficacy of imatinib as first-line therapy for patients with CML has been overshadowed by the emergence of clinical resistance. Despite high hematologic and cytogenetic response rates, primary refractoriness and acquired resistance are increasingly seen in patients with CML, particularly patients with more advanced stages of the disease. The mechanisms of resistance have been identified as the acquisition or the selection of specific point mutations within several critical regions of the ABL kinase domain and the overexpression of BCR-ABL, mainly as a result of gene amplification. X-ray crystallographic studies have shown that the high selectivity and efficacy of imatinib are a result of bind-

ing and locking BCR-ABL in its inactive, auto-inhibited conformation.

Mutations seem to cause resistance by inducing a transition from the inactive to the active state, a form in which imatinib cannot bind, or by disturbing critical contact points between imatinib and BCR-ABL. An increasing number of mutations responsible for imatinib resistance have been identified. Imatinib resistance often coincides with the reactivation of kinase activity within the leukemic clone.

Therefore, therapeutic targeting of BCR-ABL and its downstream pathways remains a valid therapeutic strategy. Different ABL mutants display different degrees of resistance to imatinib. While some mutations confer a highly resistant phenotype, suggesting the strategy of stopping treatment with imatinib and trying a different therapeutic approach, others may be overcome simply by increasing the dose. Several approaches and new compounds are being evaluated, including a higher dose of imatinib, imatinib in combination with chemotherapeutic agents, and more potent inhibitors of BCR-ABL that maintain the ability to bind to and inhibit the mutant form. Routine testing of BCR-ABL sequences present in the tumor are increasingly being incorporated into clinical practice to enable rational, individualized therapeutic management of patients with CML.

The development of imatinib is an example of how the individualization of anticancer therapy promises to yield more impressive results than the one-size-fits-all therapeutic approach of the pre-molecular era.

## Glossary

acquired immunity – Immunity from a particular disease state brought about by result of infection or vaccination

agonist – Molecule that selectively binds to a specific receptor and triggers a response in a cell

alopecia – Loss/absence of hair; side effect of cancer treatment; hair usually grows back

anemia – Less than normal amount of red blood cells; often renders the patient weak and tired

angiogenesis – Development of new blood vessels (capillaries) that allow tumor cells to access nutrients for their growth

antagonist – Ligand (eg, growth factor) that inhibits function of an agonist

antiangiogenesis – Inhibiting the formation of blood vessels (capillaries)

antigen – Any molecule, not necessarily a protein or peptide, that is capable of inducing a specific immune response

antisense oligonucleotides – Synthetic DNA or RNA that can block the production of faulty proteins. Antisense molecules are designed to interact with mRNA before it can be translated into the amino acids that compose proteins, preventing disease-associated proteins from being made. These molecules are called antisense, because they are the opposite of the original RNA or DNA.

apoptosis – Genetically determined (normal) process of cell self-destruction that eliminates DNA-damaged, superfluous, or unwanted cells

carcinogenesis – Process by which normal cells become cancer cells

clean margins – Histopathological definition that describes surgical margins as 'free of cancer cells'

epidermal growth factor – A polypeptide hormone that stimulates cell proliferation especially of epithelial cells by binding to receptor proteins on the cell surface

fusion proteins – Proteins generated in the laboratory or within cancer cells themselves by linking together of gene fragments (eg, after chromosomal translocation) or their protein products

gene therapy – Transfer of selected genes into a patient to try to ameliorate or cure a disease

interleukin – Largest group of cytokines; interleukins stimulate white blood cells to fight infections

ligand – In general, a molecule or ion that can bind to and interact with a protein molecule

memory cell – A long-living lymphocyte that carries the antibody or receptor for a specific antigen after a first exposure to the antigen and that remains in a less than mature state until stimulated by a second exposure to the antigen, at which time it mounts a more effective immune response than a cell that has not been exposed previously

metastases – Tumors that are the result of the transfer of cancer cells from a distant part of the body; generally occurs through the lymphatic and blood systems

metastasize – Process of a tumor spreading to other areas of the body that are not in direct contact with the tumor

monoclonal antibody – An antibody derived from a single cell in large quantities for use against a specific antigen (eg, a cancer cell)

mucositis – Inflammation of lining of mouth and digestive tract; oral mucositis impairs eating, swallowing, and talking

neutropenia – Low blood counts of granulocytes, the white cells that fight infections

oncogene – Gene found in chromosomes of tumor cells whose activation is associated with the transformation of normal cells into cancer cells

phenotype – How an individual organism looks; phenotype is determined to a large extent by genotype, or by the identity of the alleles that an individual carries at one or more positions on the chromosomes

proto-oncogene – Oversees cell function by producing growth factors, growth factor receptors, or intracellular signalling molecules; if damaged, it can become an oncogene

receptor – Generally, a protein on the cell surface or in the cell interior that has an affinity for a specific chemical group, molecule, or virus

ribozymes – RNA enzymes that catalyze site-specific cleavage of RNA

transfect – To incorporate exogenous DNA into a mammalian cell

tumor markers – Molecules, proteins, or processes that differ from the norm in malignant cells, tissues, or fluids in patients with cancer

tyrosine kinase – Molecules, proteins, or processes that differ from the norm in malignant cells, tissues, or fluids in patients with cancer

vaccine – Therapeutic protein made from the cells of the disease it is expected to prevent, but in a weakened and inactivated state; vaccines trigger the immune system to recognize the virulent form of the protein in subsequent encounters

vascular endothelial growth factor – A protein that is a major factor in promoting the growth of new blood vessels

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### Career Pathways in Medical Communication

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If you have a strong interest in science and a talent for writing, medical communication offers many career opportunities. A broad overview of the field was presented at the Scope of Medical Communication open session at the 2006 AMWA Annual Conference, where panelists representing various settings graciously shared their knowledge and experience. Lois J. Baker, MS, Senior Health Sciences Editor at the State University of New York at Buffalo, served as the moderator. Melissa L. Bogen, ELS, Bogen Editorial Services, shared insights from her experiences as a freelance editor. Lori De Milto, MJ, Writer for Rent, spoke about opportunities in freelance medical writing. Jane D. Stephenson, PhD, MBA, Bristol-Myers Squibb Company, provided a snapshot of the writing department at a pharmaceutical company, and Lili Fox Velez, PhD, Associate Professor, Towson University, spoke of her experiences working for medical communication companies. This article is based on the information presented during this session as well as on additional research and my own experience.

The demand for skilled writers and editors is high, as is the earning potential, and the work can be both interesting and challenging.<sup>1</sup> Medical writers translate medical and scientific information into prose, tables, and figures to produce documents and presentations for a target audience. Medical editors enhance the clarity and quality of material produced by medical writers and others.

Some medical writers may have advanced scientific or medical degrees and have worked as clinicians, pharmacists, or researchers; others may have degrees in English or journalism and have worked as technical writers, journalists, or editors.<sup>2,3</sup> My current coworkers include a physician, former bench scientists, nurses, clinical trials monitors, and recent graduates from postdoctoral programs, as well as medical writers with advanced degrees and years of writing experience. Before becoming a medical writer, I worked in the computer industry as a technical writer for 12 years.

**What job opportunities are available in medical communication?**

The career opportunities in medical communication are as diverse as the individuals: medical writer, science writer, video scriptwriter, medical editor, author's editor, copyeditor, editorial assistant, managing editor, publications manager, and public relations specialist, among others.<sup>1,2</sup>

**What do medical communicators produce?**

The products created or edited by professionals in medical communication include the following:<sup>1,2,3</sup>

- Medical journalism—articles for newspapers and consumer magazines, documentaries, and health segments for news shows
- Publications medical writing—manuscripts for scientific journals as well as abstracts and posters for scientific meetings
- Regulatory medical writing—research protocols, clinical study reports, investigational new drug applications, and investigator brochures for submission to regulatory agencies
- Marketing writing—press releases and advertisements for pharmaceutical companies or health care institutions
- Academic medical writing—grants and proposals for researchers at medical centers and academic institutions
- Continuing medical education—educational slide kits, print courses, lecture notes, symposia materials, and Web site content to maintain or increase the knowledge and skills of medical professionals
- Patient education—brochures, newsletters, and handouts for patients explaining medical procedures, conditions, or treatment options<sup>1,2</sup>

**Who hires medical writers and editors?**

Employment opportunities include positions at pharmaceutical companies, contract research organizations (CROs), academic institutions, medical centers, journals, newspapers, and medical communication companies.<sup>1,2</sup> Additionally, many medical writers and editors work as freelancers, providing services to several different companies and working on a variety of projects.<sup>1,2</sup> Most freelance medical writers and editors work for pharmaceutical companies, CROs, or medical communication companies first to gain experience, network with colleagues, and build a list of potential clients before becoming consultants.<sup>2</sup>

**What skills are needed to be successful in medical communication?**

Qualified candidates should have excellent writing skills and a strong background or interest in science.<sup>1,2</sup> The ideal medical writer or editor is detail-oriented, proactive, well

organized, able to gather and synthesize data, knowledgeable about at least one therapeutic area, or interested in learning about new therapeutic areas or indications, familiar with relevant style guides or guidelines, and able to write appropriately for the target audience.<sup>2</sup> For jobs in the pharmaceutical industry, candidates must understand the drug development process. Project management skills are essential, because most jobs in medical communication involve setting schedules, orchestrating review cycles, and soliciting feedback from busy reviewers and authors.

How much can you earn as a medical writer or editor? According to the 2004 AMWA salary survey, the average annual income for jobs in medical communication ranges from \$50,000 to well over \$100,000.<sup>4</sup> How much you can earn depends on several factors: your level of education, years of experience, and the type of company you work for (eg, pharmaceutical company compared with CRO).<sup>4</sup> Typically, the highest salaries are earned by those with advanced degrees and many years of experience who work for pharmaceutical, communication, or advertising firms.<sup>4</sup> (AMWA conducts a salary survey every 2 to 3 years, and one will be conducted this April, with the findings reported later in the year.)

How can you find the right job?

The opportunities in medical communication are almost limitless. For those new to the field or looking for a change, the key is finding the right fit. The answers to some specific questions may help you narrow down the choices:

- Which area of medical communication and which type of company are the best fits for your education, experience, background, and interests?
- Would you rather be writing for a lay audience or a scientific audience?
- Do you want to be involved in reporting the results of current research on new drugs?
- Is your interest in medical devices, biologic agents, or pharmacotherapy?
- Do you want to be part of an established medical writing department with clearly defined policies and procedures and experienced colleagues, or do you want the independence and responsibility of working for yourself?

To find your answers to these questions, start by networking with colleagues already working in the field. However, the answers to some questions may only become clear with experience.

My own transition to medical writing involved a series of steps over several years. After following the advice of a colleague and joining AMWA, I attended the local chapter conference, where I learned about medical writing and started networking with experienced medical writers and editors. I took an entry-level position at an academic research organization editing research protocols, manuscripts, abstracts, and Web site content. After gaining some experience, I worked on more challenging projects—writing abstracts,

### To learn more about medical writing

- Read the essays on the scope of medical communication in AMWA's *Essays for Biomedical Communicators*.<sup>5,6</sup>
- Take courses in medical writing at a local university or an online course offered by a remote university
- Join AMWA, attend chapter meetings, attend the national conference, and get involved
- Read relevant journals or magazines
- Take college courses in anatomy and physiology, pharmacology, and statistics
- Earn AMWA core and advanced curriculum certificates
- Review style guides and books on medical writing

### To break into the medical communication field

- Seek internship opportunities within pharmaceutical companies or CROs, directly or through your university
- Apply for entry-level positions at CROs and academic institutions, which may be more likely to hire writers with less experience
- Apply for copyediting or proofreading positions at publishing companies or journal offices, which may be willing to hire less experienced editors with English or journalism degrees
- If you have a degree or background in English, apply for a copyediting position
- If you have a degree in journalism, try writing an article for a consumer magazine
- Volunteer to write a newsletter or Web site article or a patient education brochure for a hospital, university, or nonprofit institution (this will provide you with a writing sample, which is quite helpful)
- Take an AMWA workshop focused on the type of writing that you are interested in, such as writing articles for consumer publications, writing a clinical study report, or grant writing, to gain more knowledge and experience

creating newsletters for clinical trial investigators, writing a patient education manual, and eventually editing an entire textbook. During this time, I obtained my AMWA core curriculum certificate and completed college courses in biology, chemistry, anatomy and physiology, pharmacology, statistics, ethics, medical terminology, clinical trials research and regulations, and protocol design. Then, a position that seemed like a great fit for me became available—editing manuscripts for a mid-size pharmaceutical company. After editing manuscripts for 6 months, I transitioned to publications writing. Now, I work with investigators and clinical development staff to prepare manuscripts based on the results of clinical trials.

### References

1. Baker LJ, Bogen ML, De Milto L, Stephenson JD, Velez LF. Scope of medical communication. Presented at: the 66th Annual American Medical Writers Association Conference; October 26, 2006; Albuquerque, NM.

# Write It Down...Every Step of the Way

By Bill Beyer

Director of Marketing, The Center for Professional Innovation & Education

The Center for Professional Innovation & Education (CfPIE) gives writers the skills they need to produce effective and compliant documentation.

As regulatory bodies that govern the life sciences come under increasing public pressure to enforce the safe development and production of therapeutic products that improve quality of life, the burden on firms to meet these standards becomes greater and penalties for noncompliance become ever more stiff. Companies must develop procedures that describe all their processes, such as initiating a clinical trial site, writing a clinical study report, putting together a Common Technical Document, or writing a journal manuscript. The documents a company produces, based on its procedural infrastructure, offer “proof” of compliant operations.

Training is always a critical component of compliant operations. People who produce documentation must understand the requirements—thus, training in both the “why” as well as the “how to” is equally important. A look at the warning letters from the US Food and Drug Administration (<http://www.fda.gov/foi/foia2.htm>) confirms just how necessary training is, as companies are often cited for failing to produce proof of employee education. Warning letters indicate that, for some companies, employees have not demonstrated the “skills, education, and training” to perform their jobs. Failure to produce adequate documentation is also a common citation, and 60% of warning letters point to faulty, incomplete, or missing documentation.

To help meet the training needs of industry, The Center for Professional Innovation & Education (CfPIE) offers a full suite of programs specifically for life sciences professionals. CfPIE’s faculty members are industry experts who direct courses that address the toughest compliance challenges. Among CfPIE’s extensive list of training programs are 5 courses that specifically address how to develop sound writing skills for the full range of documentation the industry requires, from the procedural “how to” documents companies must put in place, to correspondence, study reports, and publications:

- Writing Effective Standard Operating Procedures and other Process Documents
- Introduction to Effective Medical Writing
- Technical Writing for the Pharmaceutical, Medical Device, and Biotech Industries
- Writing in the Regulated Environment When English Is Your Second Language
- Effective Document Management for the Pharmaceutical, Biotech & Medical Device Industries



Janet Gough, a member of AMWA, is the Course Director for these offerings. She has more than 20 years of experience teaching writing at the university level and as a consultant helping firms develop document systems, prepare documentation, and conduct training. She also does a fair share of writing herself. She has 10 books to her credit, including *Write It Down: Guidance for Preparing Effective and Compliant Documentation*, now in its 2nd edition (Taylor and Francis Books). She fully understands how crucial good writing is in this industry. “Companies may have the best science and technology, but their primary proof resides in the written word,” says Gough.

Mark Mazzie, Managing Director of CfPIE, with 15 years of experience in training and development within industry, concurs. “Clearly the need for documentation skills is enormous in this industry. CfPIE offers a comprehensive writing curriculum for life science professionals. As firms recognize the importance of trained writers, our classes are usually full, with waiting lists. They are very popular and support the writing requirements of the industry.”

CfPIE delivers more than 250 public courses annually in Malvern, PA, Costa Mesa, CA, and Dublin, Ireland. The Center offers an equal number of customized, client-site programs in the United States and internationally. CfPIE’s strength is that classes are small, with typically no more than 20 participants, ensuring that individual needs are addressed.

For course schedules, onsite program questions, or general inquiries, contact CfPIE directly by phone at (610) 688-1708 or e-mail at [info@cfpie.com](mailto:info@cfpie.com). Or, visit the Center online at [www.cfpie.com](http://www.cfpie.com) to see how it can provide education for your staff, keep your firm compliant, and improve your bottom line.

continued from page 30

2. AMWA Delaware Valley Chapter. Toolkit for new medical writers. Available at: [www.amwa.dvc.org/gettingstarted/toolkit.shtml](http://www.amwa.dvc.org/gettingstarted/toolkit.shtml). Accessed on October 31, 2006.
3. Evans CD. Medical communications in the pharmaceutical industry. In: Witte FM, Taylor ND, eds. *Essays for Biomedical Communicators: Volume 1 of Selected AMWA Workshops*. Rockville, MD: American Medical Writers Association; 2001:13-16.
4. Gray T, Hamilton CW. Findings from the 2004 AMWA salary survey. *AMWA J.* 2004;19(4):145-151.
5. Witte FM, Taylor ND, eds. *Essays for Biomedical Communicators: Volume 1 of Selected AMWA Workshops*. Rockville, MD: American Medical Writers Association; 2001.
6. Witte FM, Taylor ND, eds. *Essays for Biomedical Communicators: Volume 2 of Selected AMWA Workshops*. Rockville, MD: American Medical Writers Association; 1997.

**PROFESSIONAL DEVELOPMENT**

AMWA offers a variety of opportunities for medical communicators to enhance their professional skills and knowledge. AMWA's educational program is a cornerstone of the association's commitment to providing high-quality continuing education for medical communicators. Individuals can earn a core curriculum certificate in 1 of 5 designated specialties and can also earn an advanced curriculum certificate. (See page 52 for a list of AMWA members who earned a curriculum certificate in 2006.)

AMWA also established the Professional Development Certificate (PDC) as a means for individuals to demonstrate a commitment to their professional development. Since the development of this program in 2004, several members have earned a PDC (see page 53 for a list of recipients).

Both the curriculum certificates and the PDC are open to nonmembers as well as members. Information about AMWA's education programs and certificates are available on the AMWA Web site ([www.amwa.org](http://www.amwa.org)).

## Call for Short Stories for the Prose for Papa Contest

If you write short stories, consider submitting them to the Prose for Papa competition, part of the third annual Ernest Hemingway Festival. The winner of the competition receives the following:

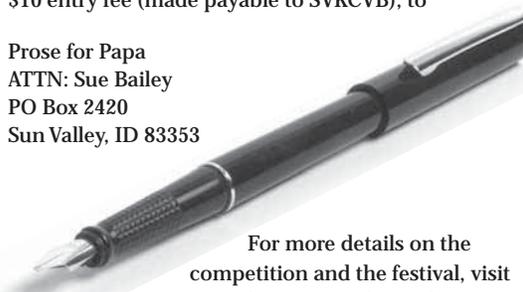
- Award of \$500
- Recognition during the festival
- Publication of the story in the festival magazine

Submitted work must be original, unpublished short fiction (no longer than 2,600 words or 10 pages double-spaced). The deadline for submission is June 1, 2007. The stories will be judged by Daniel Orozco, featured writer on National Public Radio.

The festival will be held September 20-23 in Sun Valley, Idaho, where the legendary author hunted and wrote on and off for 22 years and where he is laid to rest. Designed to be a well-rounded celebration of the author's life in the Wood River Valley, the festival features include lectures and panel discussions by national scholars, a tour of Hemingway sites, museum displays, a film festival, and a "Hemingway in Idaho" slide presentation.

Send your entry, along with a nonrefundable \$10 entry fee (made payable to SVKCVB), to

Prose for Papa  
ATTN: Sue Bailey  
PO Box 2420  
Sun Valley, ID 83353



For more details on the competition and the festival, visit [www.ernesthemingwayfestival.org](http://www.ernesthemingwayfestival.org) or send an e-mail to [proseforpapa@visitsunvalley.com](mailto:proseforpapa@visitsunvalley.com).

**Board of Editors  
in the  
Life Sciences  
(BELS)  
Certification  
Examinations**

Sunday, April 15, 2007 1-4 PM Pacific Grove, CA (AMWA Northern California Chapter Conference) →Register by March 25, 2007	Friday, May 4, 2007 1-4 PM Seattle, WA (AMWA Northwest Chapter Conference) →Register by April 13, 2007	Wednesday, October 10, 2007 10 AM-1 PM Atlanta, GA (AMWA Annual Conference) →Register by September 29, 2007
Friday, April 27, 2007 1-4 PM Kingston, Ontario, Canada (AMWA Canada Chapter Conference) →Register by April 6, 2007	Saturday, May 19, 2007 1-4 PM Austin, TX (CSE Annual Meeting) →Register by April 28, 2007	Contact: Leslie E. Neistadt, ELS E-mail: <a href="mailto:neistadt@hughston.com">neistadt@hughston.com</a> Phone: (706) 576-3322 <a href="http://www.bels.org">www.bels.org</a>



## CALENDAR OF MEETINGS

American Medical Writers Association  
67th Annual Conference  
October 11-13, 2007  
Atlanta, GA

68th Annual Conference  
October 23-25, 2008  
Louisville, KY

American Society of Indexers  
Annual Conference  
May 23-27, 2007  
Philadelphia, PA  
Contact: American Society of Indexers  
10200 West 44th Avenue, Suite 304  
Wheat Ridge, CO 80033  
Phone: (303) 463-2887; Fax: (303) 422-8894  
E-mail: info@asindexing.org  
www.asindexing.org

American College of Clinical Pharmacy  
Annual Meeting  
October 14-17, 2007  
Denver, CO  
Contact: ACCP  
3101 Broadway, Suite 650  
Kansas City, MO 64111  
Phone: (816) 531-2177; Fax: (816) 531-4990  
E-mail: accp@accp.com  
www.accp.com

American Public Health Association  
Annual Meeting  
November 3-7, 2007  
Washington, DC  
Contact: American Public Health Association  
800 I Street, NW  
Washington, DC 20001  
Phone: (202) 777-2742; Fax: (202) 777-2534  
E-mail: comments@apha.org  
www.apha.org/meetings

American Society of Journalists and Authors  
Annual Conference  
April 20-22, 2007  
New York, NY  
Contact: American Society of Journalists  
and Authors  
1501 Broadway, Suite 302  
New York, NY 10036  
Phone: (212) 997-0947; Fax: (212) 937-2315  
www.asja.org

Association for Women in Communications  
October 4-6, 2007  
Lake Buena Vista, FL  
Contact: Association for Women in  
Communications  
3337 Duke Street  
Alexandria, VA 22314  
Phone: (703) 370-7436; Fax: (703) 370-7437  
info@womcom.org  
www.womcom.org

Council of Science Editors  
CSE Annual Meeting  
May 18-22, 2007  
Austin, TX  
Contact: CSE Headquarters  
c/o Drohan Management Group  
12100 Sunset Hills Road, Suite 130  
Reston, VA 20190  
Phone: (703) 437-4377; Fax: (703) 435-4390  
E-mail: cse@councilscienceeditors.org  
www.councilscienceeditors.org

Drug Information Association  
43rd Annual Meeting  
June 17-21, 2007  
Atlanta, GA  
Contact: Cheryl Buckage  
Drug Information Association  
800 Enterprise Road, Suite 200  
Horsham, PA 19044-3595  
Phone: (215) 442-6194; Fax: (215) 442-6199  
E-mail: Cheryl.Buckage@diahome.org  
www.diahome.org

Health Academy, Public Relations  
Society of America  
Annual Conference  
May 4-5, 2007  
Washington, DC  
Contact: Health Academy  
33 Maiden Lane, 11th Floor  
New York, NY 10038-5150  
Phone: (212) 460-1461; Fax: (212) 995-0757  
E-mail: philip\_swayze@bcbsri.org  
www.healthacademy.prsa.org

Health and Science Communications  
Association  
48th International Conference  
June 14-16, 2007  
Toronto, Canada  
Contact: Health and Science  
Communications Association  
39 Wedgewood Drive, Suite A  
Jewett City, CT 06351  
Phone: (860) 376-5915; Fax: (860) 376-6621  
E-mail: hesca@hesca.org  
www.hesca.org

International Society for Medical  
Publication Professionals  
3rd Annual Meeting  
April 23-25, 2007  
Philadelphia, PA  
Contact: International Society for Medical  
Publication Professionals  
Phone: (914) 945-0507; Fax: (914) 945-0307  
E-mail: kgoldin@ismpp.org  
www.ismpp.org

National Association of Science Writers  
Workshops, Council for the Advancement  
of Science Writing New Horizons Meeting  
October 19-23, 2007  
Seattle, WA  
Contact: Diane McGurgan  
CASW  
PO Box 910  
Hedgesville, WV 25427  
Phone: (304) 754-5077  
E-mail: diane@nasw.org  
www.casw.org

Plain Language Association International  
October 11-14, 2007  
Amsterdam, The Netherlands  
Contact: Plain Language Association  
International  
E-mail: plain@garbl.com  
www.plainlanguagenetwork.org

Regulatory Affairs Professionals Society  
Annual Conference & Exhibition  
September 24-27, 2007  
Boston, MA  
Contact: RAPS  
11300 Rockville Pike, Suite 1000  
Rockville, MD 20852  
Phone: (301) 770-2920; Fax: (301) 770-2924  
E-mail: raps@raps.org  
www.raps.org

Society of National Association Publications  
2007 Annual Publications Management  
Conference  
June 14, 2007  
Washington, DC  
Contact: Society of National Association  
Publications  
8405 Greensboro Dr., #800  
McLean, VA 22102  
Phone: (703) 506-3285; Fax: (703) 506-3266  
E-mail: snapinfo@snaponline.org  
www.snaponline.org

Society for Scholarly Publishing  
29th Annual Meeting  
June 6-8, 2007  
San Francisco, CA  
Contact: Society for Scholarly Publishing  
10200 W. 44th Avenue, Suite 304  
Wheat Ridge, CO 80033  
Phone: (303) 422-3914; Fax: (303) 422-8894  
www.sspnet.org

Society for Technical Communication  
54th Annual Conference  
May 13-16, 2007  
Minneapolis, MN  
Contact: Society for Technical  
Communication  
901 North Stuart Street, Suite 904  
Arlington, VA 22203  
Phone: (703) 522-4114; Fax: (703) 522-2075  
E-mail: stc@stc.org  
www.stc.org



## What Is the Future of Medical Writing?

By Arnold Melnick, DO

Times, they are a-changin'?

Seems like they are, including the Times—The New York Times that is.

Recent reports (The Nation and other publications) herald the demise of the written news media. They note that circulation (and readership) is down and profits are dropping. And news gathering staffs are being decimated. The Los Angeles Times, the Boston Globe, Akron Beacon Journal, the San Jose Mercury News and the Dallas Morning News are among the publications indicating less readership, and they are starting to reduce their news staffs. Even venerable magazines, like Time and Business Week, appear to be in this dangerous vortex. We are in an era of worship of the bottom line; it is a paean to Wall Street.

Not long ago, the emeritus book editor of the Miami Herald did a comprehensive piece frighteningly called “The Waning Power of Books,” reflecting on the decreased reading of books and the decreased power of books to influence our lives.

At the same time, Google and Apple are posting increasing and major profits. What does it all mean? What does it mean to medical writing? Professing that I am not a maven on the subject, I might conjecture a few thoughts.

Simultaneous with these scary events, the number of medical books and the number of published (and submitted) medical articles seem to keep increasing. So much so that a single reader, no matter how interested or talented, cannot keep up with the pace, even within narrow specialty fields. Have we reached a point that we can call “glut”?

It is logical to assume that what's happening in the news and book fields will have an impact on medical writing. Are we producing too many medical articles? Are they all germane? Are they all significant? Will pro-

duction costs soon produce a cutback (even with print-on-demand), and will medicine benefit or suffer with that? Will the number of medical writers decrease—slowly or suddenly? (When I started, there were a few hundred members of AMWA, now there are more than 5,000—a phenomenal increase. Will they—we—all be able to continue in this field? Or will this field itself disappear—or just diminish?)

I have written before of the nebulous reliability of electronic dissemination of information. Mixed with accurate information, incorrect information can be posted, be picked up by people looking for absolute information, and then wiped off with a single click, leaving everyone high and dry. A former editor of the Annals of Internal Medicine once said that research does not become research until you can see it in print.

Maybe we need to publish (print and distribute) only summaries or abstracts (the official ones) in fewer and fewer publications, so that complete dissemination of pertinent information continues at the same time as the decrease in number of publications occurs. We can then keep all the original articles in electronic files, ever available for specific reference purposes. (The bump I just felt on my head was academia wielding its big club.)

So I fear for accuracy in news—including medicine. I fear for medical writers' jobs. I even fear for national literacy. I fear for writers, for would-be writers, and for some-day-hope-to-be writers.

What do I propose? I am not a guru who can devise an answer or stop the storm or hold back the waves. The best I can do is press the button and sound the alarm. We all need to be alert to what's happening and all of us must look for solutions.

My cry is not “The sky is falling! The sky is falling!” I cry for all of us to maintain continued vigilance.

***There is no such thing as a simple explanation.***

By Edie Schwager

Institutional affiliations are given for information and convenience only. The views expressed, being solely those of the correspondents, do not represent those of any institution named or of the American Medical Writers Association. All queries, unless otherwise specified, were received and replied to by e-mail.

DEAR EDIE: I was struggling with the word "via." When is it best or appropriate to use it instead of "by"? For example, here is the subhead of a Methods section for a manuscript I was editing: "Generation of Mutant Mice via Gene Trapping." Here is a sentence under the subheading: "The mouse genes were mutated by gene trapping as previously described [authors, year]." I'd appreciate your assistance with this conundrum. Thanks.

BILL SONNENBERG, PhD  
The Woodlands, Texas

DEAR BILL: Thanks for an interesting problem in usage. I share your queasiness about using "via" instead of "by." Actually, of course, it's Latin, but has been so integrated into the language for centuries that it's no longer written in italics. "Via" originally meant "by way of," that is, in transportation. In more recent times, it has come to mean in the vulgar "by means of" or "by way of." I have never used the word except in a transportation context, but I guess I must bow to what has been used by E. B. White and John Updike, among hordes of others, to mean "through," "by," or any other preposition that comes to their minds.

If there is a problem with "by," why not just say "by means of"? I don't see why the subhead should use "via" when it's so plain that the cited sentence says it all by just using "by." I'd go with "by" or "by means of." The latter is more medically precise and is only two more words.



DEAR EDIE: I read in your column (AMWA J, Vol. 21, No. 3, 2006) about use of the slash. I see it all the time with regard to nausea/vomiting, when the word "or" should be used.

Another recent use in medical journals, even more bothersome to me, is Grade 3/4 adverse events. Actually, they do sum the Grade 3 and 4 events (for example, the incidence of Grade 3/4 neutropenia was 56%). I suppose that using a

hyphen might serve well, since the incidence of Grade 3-4 neutropenia was 56%.

We are not reporting the ratio of Grade 3 over Grade 4 events. I believe that we're reporting the total of Grade 3 and Grade 4 events. So wouldn't the use of a hyphen be more correct? Do you think that the reader would misinterpret Grade 3-4 events as anything other than inclusive?

KRISTI A. BOEHM  
US Oncology Research, Inc.  
Houston, Texas

DEAR KRISTI: Use (overuse or abuse) of the slash is so troublesome because it's so imprecise and confusing. With regard to the phrase "nausea/vomiting," it's self-descriptive (not to make a pun). I'd write "nausea or vomiting or both." That covers all bases, and there is no mistaking the meaning.

I can't understand why people are reluctant to use "and" or "or" where these little words are so patently appropriate. The addition of those tiny words would obviate potentially hazardous or even lethal nosocomial mistakes.

So far as the adverse events are concerned, I'd write Grade 3 and Grade 4 events, rather than use a hyphen, which might denote that 3 and 4 are intertwined. They're not; they're just added together.



DEAR EDIE: I recently noted that a researcher referred to "recalcitrant" patients, meaning nonresponders. For example: "Drug therapy has been suggested for patients recalcitrant to conservative therapies." Is this a correct use of the word or should it read something like "Drug therapy has been suggested for patients who do not respond to conservative therapies"?

There doesn't seem to be a medical-type definition of this in Dorland's Illustrated Medical Dictionary, and my Canadian Oxford dictionary just defines "recalcitrant" as resisting discipline or authority; obstinately disobedient or difficult to manage or operate. Thanks so much for your help.

I wish your columns were indexed somewhere so that I

could quickly look up whether or not you've already covered this topic. This would be a terrific addition to the AMWA Web site.

LEIGH-ANN TOPFER  
Canadian Agency for Drugs and  
Technologies in Health (CADTH)  
Edmonton, Alberta, Canada

DEAR LEIGH-ANN: Your query highlights the subtleties and nuances of English usage. "Recalcitrant" carries with it a pejorative tone. Such a person is as exactly described in your dictionary. That's a person being described, not a course of treatment. How can a regimen be obstinate?

I much prefer your suggestion, since it refers precisely to the treatment, which, after all, is the point. A nonresponder (no hyphen, please) has little choice when treatment fails. It's the treatment that is unsuccessful, not the patient. A patient who does not respond to a particular or certain treatment does not have a character or personality flaw.

There is no medical definition of "recalcitrant" or need for one. It's an ordinary, nonmedical word.

A long time ago an industrious, clever, and kindly AMWA member actually indexed several years of my column, unbeknownst to me. When she broached the subject to me, I was inordinately pleased, but said regretfully that it would be an exercise in futility. I would be the only person able to use such a valuable index, since the potential user would also have to have access to the physical issues or photocopies of the columns, or to the Internet. That's an impossibility for AMWA, because even a few years of columns would take up an incredible, unconscionable amount of space on our Web site. Unfortunately, I still don't have the indexing work that was finished.



DEAR EDIE: My writing group writes documents to support the research and development of oncology products. I hear some people throwing around the terms "relapsed" and "refractory" almost interchangeably. I know this can't be right. It's my understanding that a patient relapses and a disease is refractory.

Can you comment on the correct usage of these terms and give some examples? Thanks!

CHARLENE A. TUCKER  
Cephalon, Inc.  
Frazer, Pa.

DEAR CHARLENE: Without any context, it's difficult for me to criticize. However, the two meanings are so disparate that I am dismayed when people use them synonymously or interchangeably.

Definitions of "relapse": Dorland's: The return of a disease after its apparent cessation." Stedman's Medical Dictionary: "relapsing; recurring; said of a disease or its manifestations that returns in a new attack after an interval of improvement." Webster's Third New International Dictionary: "to slip or fall back into a former state (as of illness, vice)." Its example: "He relapsed when allowed out of bed." Mosby's Medical and Nursing Dictionary: "to exhibit again the symptoms of a disease from which a patient appears to have recovered."

Definitions of "refractory": Mosby's: "resistant to treatment, as of a disease. Synonym: intractable." Dorland's: "resistant to treatment." Webster's Third: "resistant to treatment or cure. Its example: "a refractory fulminating lesion."

My two cents: "Her migraine seemed at first to be refractory to the many standard treatments." "The patient relapsed into a coma."



DEAR EDIE: One of our faculty members, an erudite surgeon fluent in several languages, criticized a resident for saying something along these lines: "We divided the results into tertiles [high-volume, mid-volume, and low-volume groups]." He explained that you can only "divide" something into two groups, presumably because the "di-" from Latin means two, so he advised using the word "split" for tertiles.

Both of my respected dictionaries (Dorland's and American Heritage) unequivocally refer to "dividing" into more than just two groups. Is there some new trend to reserve "divide" for just two, à la "bisect"?

Another question: A Latin-trained AMWA member insists (wrongly, in my opinion) on using "major" and "minor" only in the singular. For instance, she would allow "The major goal of this study was to . . . ; the minor goal was to . . ." She frowns on the plural: "The major goals in this study were to . . . ; the minor goals were to . . ." To me, her take on the singular is not in sync with modern English.

MARY KNATTERUD  
University of Minnesota Medical School  
Minneapolis, Minn.

DEAR MARY: That faculty member, although erudite and fluent in many languages, knows all about surgery, but I absolutely disagree with his English usage. The "di" in "divide" comes from dividere, Latin for "dis-" apart, and videre, to "separate into two or more parts, areas, groups." That definition is given in Webster's Third as "to split up" and an example given is to "divide the city into wards." It would be a small city indeed to have only two wards. So the prefix dis- means apart, not "two." "Di-" can frequently mean two, but not in the case of "divide."

Things can be divided into innumerable parts (unless it's an inheritance, in which case that would be rather complicated). I recommend that you show the entry in Webster's Third to your learned physician to validate your and my opinion. He is using folk (I call it fake) etymology.

Sidebar: I have never seen the word "tertile," nor could I find it in any dictionary. I am constrained to guess what it means, but is there such a word? Did someone coin it on the basis of quartile, quintile, etc.? "Sextile" (sex gets into everything) means either "relating to 60 degrees" or "the aspect of two heavenly bodies when 60 degrees distant from each other." "Septile" refers to the "septa," the plural of septum.

As for "major," Theodore M. Bernstein wrote the following in *The Careful Writer*:

As an adjective in the comparative [not the superlative; italics mine] degree, major properly should not be used as a synonym for important, weighty, serious, great, basic, or fundamental. But by indiscriminating writers it often is. Not only is the word overused [so true!], but in addition it frequently is accompanied by qualifiers that should not attend a comparative: "King John" is an extremely major work"; . . . "The total body technique in the treatment of cancer so far has been too major an undertaking to repeat." Strictly speaking, major means greater [not greatest] in importance (or in standing, size, value, quality, or the like) than others of the same kind. When we speak of a "major poet," we are, or should be, thinking of him in comparison with others in his field. No doubt it is uses like these that led to the belief that the word meant important or great. It should also be noted that since the word is a comparative adjective, it usually should not be preceded by the; one might speak of "a major poet," but not of "the major poet."

So much for the "major goal." And "the minor (also a comparative adjective) goal." I could accept "the main goals." The problem with some usage "experts" is that they mistake the (Latin) degrees of comparison. "Major" (in both English and Latin) is the comparative of the Latin *magnus*, which means great. The comparative (not the superlative) "minor" (ditto) is the same in Latin (from the verb *minuere*, to lessen), and means smaller, inferior, less.

Studying, learning, and remembering English usage are not easy. Did anyone ever say they were?



DEAR EDIE: There is some confusion in our editorial department about the use of "compared with" and "as compared with." Can you explain when it is appropriate to use the former or the latter? According to the core curriculum

grammar workbook by Flo Witte with the collaboration of Nancy Taylor, it is a mistake to write the following, for example: "On average, larger mothers give birth to heavier babies compared with smaller women."

That sentence would compare the heavier babies with smaller women, which is undoubtedly not what the writer intended. Flo said the sentence could be written correctly in two ways: "On average, compared with smaller women, larger women give birth to heavier babies." "On average, larger mothers give birth to heavier babies than smaller women do."

We write a lot of comparison sentences, so the "than" formula would become repetitive very quickly!

But would it also be correct to write the following sentence?: "On average, larger mothers give birth to heavier babies as compared with smaller women." Thanks for any clarification you can provide on this issue.

SHAYNA MUCKERHEIDE  
VerusMed  
Scottsdale, Ariz.

DEAR SHAYNA: There's nothing wrong grammatically with the alternative sentence you cite ending with "as compared with smaller women." It's just that its location at the end of the sentence is awkward. The "than" version is much more euphonious and graceful. In addition, it's one word as compared with three. The "than" form would become much less monotonous and repetitive than "as compared with."

Flo Witte's second sentence is precise and unmistakable. "On average, larger mothers give birth to heavier babies than smaller women do." I prefer it to the first sentence cited in the workbook, and also to this final sentence: "On average, larger mothers give birth to heavier babies as compared with smaller women." The word "than" shows a clear comparison.

I'd go with Flo.

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Edie Schwager, a freelance writer, workshop teacher, and medical editor, lives in Philadelphia. She is the author of *Medical English Usage and Abusage* and *Better Vocabulary in 30 Minutes a Day*. Queries and comments, which may be edited, should be sent directly to her (see Instructions for Contributors) in publishable form and preferably by e-mail. Edie answers queries as soon as possible.

To avoid back-and-forth messages, please include permission to publish, if so desired, with the questions or comments. For verification, correspondents must supply all addresses, especially the city and state of the correspondent or the affiliate. The name of the affiliate and other data may be published unless Edie is otherwise directed. Her e-mail address is [dearedie@verizon.net](mailto:dearedie@verizon.net).



## MEDIA REVIEWS

The following reviews are of the 3 books that received first-place honors in the 2006 AMWA Medical Book Awards competition.

### First Place, Physicians Category

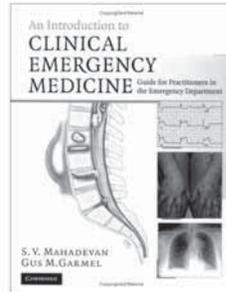
#### ***An Introduction to Clinical Emergency Medicine***

Swaminatha V. Mahadevan, MD, and Gus M. Garmel, MD, editors  
New York: Cambridge University Press, 2005. xix + 798 pp.  
\$75.00 (paperback)

I remember a favorite resident from my medical school stint in the emergency department. Calm, positive, well organized, and lucid, he led us step by step through the requisite thinking and procedures. Encouraged rather than intimidated, we learned a lot and wanted to keep learning.

An Introduction to Clinical Emergency Medicine reminds me of this resident. Edited by 2 emergency physicians active in teaching students and residents at the Stanford University School of Medicine, this book is informative, accessible, and inviting. Both the text and the illustrations contribute to this success.

The book, which lists more than 70 contributors, consists of 4 sections. The first, "Principles of Emergency Medicine," begins with a chapter on the approach to the patient and then addresses such topics as airway management, resuscitation, shock, trauma, pre-hospital care, and pain management. The second section, constituting the bulk of the book, contains 32 chapters, each on the approach to a presenting complaint. This section is organized alphabetically, beginning with a chapter on abdominal pain and ending with one on weakness. Structuring most of the book this way, rather than by type of diagnosis, parallels how patients present and so tends to aid clinicians. Also helpful to clinicians, within the chapters the portions on the medical history are structured around questions to ask. The third section of the book, "Unique Issues in Emergency Medicine," addresses child, elder, and other abuse; ethical and legal issues; environmental emergencies; and occupational exposures. The final section consists of extensive appendixes, including instructions for performing proce-



dures and guidance for interpreting laboratory tests.

Both verbally and visually, the book has many strengths. The text is readably written, and ample use of headings facilitates access.

Although by different authors, the chapters are consistent in format; an especially nice feature is the "Pearls, pitfalls, and myths" segment with which the chapters typically end. The reference lists appear quite current, and the index has sufficient spacing for easy consultation. In addition, the book makes effective use of tables, drawings, flow charts, photographs, radiographs, and other graphics. Each chapter employs a different pale hue as an accent (for example, in margins and tables), thus adding cohesiveness to individual chapters, differentiating them from their neighbors, and perhaps representing the variety inherent in emergency medicine.

Well suited for consultation in a hectic emergency department and also for study in quieter environs, An Introduction to Clinical Emergency Medicine reflects a highly successful collaboration among the editors, authors, illustrator, designer, and others. Thanks to their thought and care, the book is a fine resource for physicians in training and can aid others caring for urgent-care as well as emergency-care patients. In addition, medical writers may find it a useful reference work.

— Barbara Gastel, MD, ELS(H)

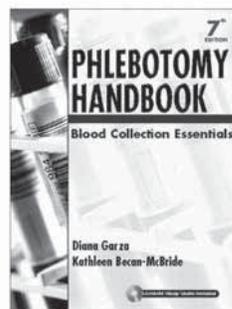
Barbara, a faculty member at Texas A&M University, chaired the Physicians Category Committee for the 2005-2006 book awards. She thanks fellow committee members Paul Dougherty, MD, of Bloomfield, MI, and Amy Givler, MD, of Monroe, LA, and emergency physician Garry Gore, MD, for contributing ideas to this review.

### First Place, Allied Health Category

#### ***Phlebotomy Handbook: Blood Collection Essentials***

Diana Garza, EdD, MT (ASCP), and Kathleen Becan-McBride  
Upper Saddle River, NJ: Prentice Hall, 2005. 592 pp. \$52.40  
(paperback)

This is the seventh edition of the most authoritative and up-to-date reference on collecting specimens in health



care—not just blood, although the primary focus here is on venipuncture, but a variety of other types of specimens as well. The role of "blood collector" is now performed by nurses, medical assistants, and respiratory

technicians as well as lab technicians; the authors recognize that decreasing patient stress and pain, improving customer service and communication skills, and streamlining processes are integral to good training. Such training results in a more patient-sensitive role and improved interpersonal skills to deal effectively with patients, their families, and health care teams.

The wealth of information provided by the authors raises this book above the level of a “how to” manual. Safety is a primary theme, and communication and sensitivity are also highlighted; an overview of anatomy and body systems is provided, along with informative sections on equipment, special procedures, point-of-care testing, and legal issues. The text is well organized and informative, with a thorough table of contents, index, and 12 appendices that focus on special concerns such as vital signs, finding a job, and essential Spanish phrases. Students who are preparing for the national exam will find that the interactive CD-ROM included with the book is an indispensable study guide.

### First Place, Trade Category

#### ***Living with Lymphoma (A Patient's Guide)***

Elizabeth M. Adler, PhD

Baltimore, MD: Johns Hopkins University Press, 2005. 424 pp.

\$50.00 (hardcover), \$19.95 (paperback)

*Living with Lymphoma* provides comprehensive, understandable, and insightful explanations about several types of lymphomas. It is an invaluable resource to prepare patients to become knowledgeable about their disease.

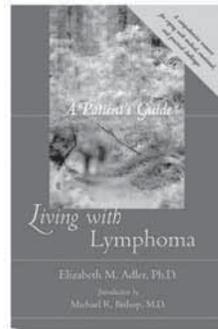
Author Adler's language is simplified as much as possible without sacrificing biologic details, scientific exactness, and specificity. Well organized sections include information on types of the disease, diagnosis, signs and symptoms, procedures, treatments, and toxicities and side effects associated with different types of chemotherapy.

*Living with Lymphoma* is also a very readable account of the author's personal battle with lymphoma. As a neurobiologist, Adler had the advantage of a medical background with which to grasp overwhelming information from health professionals. Still, she had to face myriad decisions and the continuing psychologic effects of her changing life following the diagnosis of cancer. By including a sense of humor as a survival strategy, Adler and her husband coped through diagnosis, treatment, and recovery.

The book's size (about 8 by 10 inches), while comfortable to hold, allows for exceptionally detailed color illustrations. The back cover features a chart showing different types of specimen tubes (with different colored tops) and a concise description of diagnostic tests that may be done with specimens collected in each of the tubes. A larger version of the same chart is included as a wall poster. Each chapter includes case studies for the reader to ponder, and study questions underscore each lesson.

— Dan Fernandez, Sandy Evans, and Kristina Anderson

Dan, of Seattle, WA, works full time as a paralegal and freelance copyeditor with legal and medical experience. He chaired the Allied Health Category committee for the 2005-2006 book awards. He thanks fellow committee members Sandy Evans, RN, BA, and Kristina Anderson for their contributions to the review. Sandy, who lives in Tulalip, WA, is a medical writer and technical production lead with SHPS Inc., a consumer health management company. Kristina, who lives in Albuquerque, NM, is a writer, editor, consultant, and founder of EasyRead Copywriting, LLC.



Lymphoma, a type of cancer, is a heterogeneous group of disorders that originate in lymphocytes, the major components of the immune system. Understanding differences in prognosis and treatments within the types of lymphoma is important, and explanations are included

throughout the book. Currently there are 2 major divisions in the group of diseases known as lymphoma. Hodgkin lymphoma (formerly known as/and still frequently called Hodgkin's disease), and the non-Hodgkin lymphomas. More than a dozen distinct diseases make up lymphoma. Adler emphasizes that in diagnosing the disease, staging is important, as well as the presence or absence of certain symptoms.

Care partners of the patient will find the book helpful in providing understanding and support. The book includes an excellent glossary and well prepared index.

— Ada P. Kahn, MPH, PhD

Ada, who is President of Wordscope Associates, Evanston, IL, was Chair of the Trade Category Committee for the 2005-2006 Medical Book Awards. She thanks fellow committee members Linda Felcone, of Princeton, NJ; Helen Hodgson, PhD, of Draper, UT; Loraine Schacher, of San Diego, CA; and Michele Vivirito, of Thousand Oaks, CA.





## The AMWA Web Site (www.AMWA.org) Has a NEW LOOK for 2007

### **Check out the AMWA Web site's new design!**

The site has been streamlined to improve navigation and technology and has a new, fresh, look. Members can now log in to the Members Only area from the home page. In the Members Only area, you can view your educational curriculum records, update your membership information, or connect to other member resources such as Harrison's Online, current and back issues of the AMWA Journal, the Jobs Online, and the membership and freelance directories.

### **New Information for Workshop Leaders Added to Web Site**

The Web site now offers in-depth information for members who wish to learn more about becoming an AMWA workshop leader and developing a new workshop. To access this information, click on "Education/Certificates" and then on "Information for Workshop Leaders." There you will find the following links:

#### Becoming a Workshop Leader

- General Information
- Leading an Established Credit Workshop
- Steps in Planning a Successful Workshop
- Tips for Presenting Successful Workshops

#### Developing a New Workshop

- Proposing a New Topic
- Presenting a New Workshop for the First Time
- Developing a Noncredit Workshop into a Credit Workshop
- Guidelines for Writing Workshop Titles and Descriptions
- Core and Advanced Workshop Outline Template
- Core Workshop Outline Example
- Detailed Workshop Proposal Example
- Framework for Developing a Basic Science Workshop

Members are encouraged to get involved in AMWA's educational program. Developing and leading workshops is a great way to participate in and contribute to AMWA.

### **New Listservs Activated**

During the past few months, AMWA has upgraded the Freelance, Writing-Editing, and Pharmaceutical e-mail discussion lists with new Listserv software. The upgraded software enables subscribers to receive messages in digest form and archive posts by subject. The archive resides in the Members Only area of the Web site and, although not yet available, will be accessible to all members for searching by subject.

As an AMWA member, you can choose to subscribe to any of AMWA's Listservs by visiting the AMWA Web site, clicking on "Membership," selecting "Membership Account Update," logging in, and scrolling down to the section of the page for managing Listserv subscriptions. There, you can select the lists to which you wish to subscribe and indicate whether you wish to receive messages in digest mode. To unsubscribe, send an e-mail requesting to be unsubscribed to [unsubscribe@amwa.org](mailto:unsubscribe@amwa.org); be sure to specify the name of the list to which you wish to unsubscribe (this is important because there are several different lists). The instructions for unsubscribing are on the AMWA Web site.

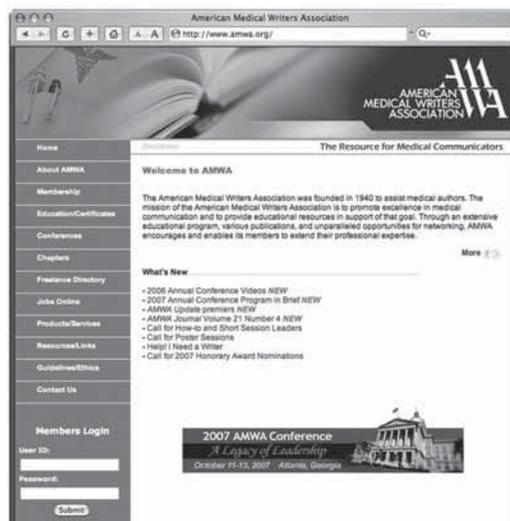
AMWA's Listservs are open forums for AMWA members to freely share their knowledge and questions about medical communication. Lively and candid exchanges are encouraged; however, subscribers must adhere to the following simple guidelines:

- Always use a relevant subject line and stay on topic.
- Be courteous and respectful. Inappropriate language or personal attacks are not allowed.
- Do not post messages seeking or advertising employment or freelance opportunities.

Remember, every message posted will be received as an e-mail by every subscriber to the list; this could include your clients or employers! Once sent, messages cannot be recalled, and all posts are permanently archived.

Questions regarding AMWA Listservs can be sent to Ronnie Streff ([ronnie@amwa.org](mailto:ronnie@amwa.org)), Communications & Technology Specialist at AMWA headquarters.

We encourage you to participate on the AMWA Listservs; we hope they provide a useful and informative means of communicating and connecting with your fellow AMWA members!





## Seeking the latest science news?

Visit the Children's Hospital Boston online News Room for embargoed news releases on basic research studies and medical advances, to sign up for news feeds, and to get in touch with your inner scientist with interactive research features.

Also find links to Children's Hospital Boston publications with stories about patients, clinicians, and the latest innovations and medical technologies.

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## Report From the Winter Executive Committee Meeting: Two Days in Atlanta

**G**reetings from Northeast Ohio! As I write this column, we are in the midst of yet another bout with Old Man Winter. (Lake-effect snow is not for the faint of heart!) Nevertheless, the fond memory of our recent Executive Committee (EC) meeting warms my heart and raises my spirits. I am grateful that so many talented and dedicated members have embraced the opportunity to effect a positive change within the association!

In this column, I will report on the winter EC meeting, held on January 19 and 20 in Atlanta, Georgia. Despite numerous flight delays due to inclement weather, it was a genuine pleasure to meet in the magnificent Marriott Marquis—the site of our next annual conference. What a beautiful venue! Those AMWA members lucky enough to be able to join us in Atlanta will doubtless enjoy the incredible sights of this year's host city.

More on the annual conference later. First, let me share some highlights of the EC meeting. AMWA secretary, Tom Gegeny, who chairs the Constitution and Bylaws Committee, brought the minutes of the October 28 EC meeting before the group for approval and shared the minutes of the October 25 and 28 Board of Directors (BOD) meetings for our information and comment preparatory to BOD review and approval this spring.

Our treasurer, Cindy Hamilton, next shared the quarterly treasurer's report, and I am pleased to report that the financial status of our association is sound. In October, Cindy, in concert with the Budget & Finance Committee, which she chairs, helped us take advantage of our financial health by proposing several initiatives. These are coming to fruition thanks to the hard work of dozens of your AMWA colleagues. Watch for announcements of these programs in the near future! In addition, Donna Munari worked diligently to prepare a preliminary budget for fiscal year 2007-2008, providing the EC the rare treat of reviewing the budget during this meeting. Much valuable discussion ensued, setting the financial background against which conversations about additional programs was set.

President-elect Sue Hudson, who chairs the Nominating Committee, presented next year's slate of officers to an enthusiastic response. The slate will be presented to the

BOD for its consideration and vote at the spring meeting.

Immediate Past President

Susan Siefert shared her plans regarding the annual conference Keynote Address. Watch for an exciting announcement in an upcoming issue of the AMWA Update!

What is the AMWA Update? This new e-bulletin launched in January, thanks to the combined efforts of the Web and Internet Technology (WIT) Committee and Ronnie Streff at headquarters. The Update brings you timely announcements of AMWA activities, combining multiple e-mail blasts into a single, monthly communication (see page 5 for more information). Watch for the next issue of the Update coming soon to your desktop! Mary Royer, WIT Administrator, is showing amazing progress in other areas as well. After a brief database error was rectified, the freelance Listserv has successfully launched; additional Listservs will launch on a regular, scheduled basis, with an exciting new Listserv soon to be available to members who subscribe to the Freelance Directory.

Scott Metsger, Awards Administrator, next discussed the status of AMWA's several competitive and honorary awards. All awards subcommittees have been staffed and are already hard at work. In addition, it was announced that we have obtained a sponsor for the competitive student scholarship award, which will now be moved permanently into the Awards Department.

Chapter and membership issues were brought to the group by Vicki White, Administrator of that department, who shared the good news that member retention levels are still rising, and that we are on track to break our membership numbers again this year as former members return, active members renew, and new members join our association. At the October meeting, Vicki led the chapter delegates in a lively discussion; she is looking forward to working with these insightful and dedicated chapter volunteers again at the spring BOD meeting.

Excitement is also building in the Department of Education, ably led by Barbara Snyder. Our 2007 on-site workshops have commenced, chapter conferences are being scheduled, and production is well under way on our

next distance-learning module (on schedule to launch at the Atlanta annual conference in 2007). As if that were not enough, Barbara and her team are currently developing other programs that will enable us to better recognize the valuable contributions of our workshop leaders, offer novel workshops to those enrolled in our certificate programs, and provide unique informational outreach to members across the association, regardless of geography. Barbara and I will share more details on these exciting new programs as they become available!

Judi Pepin, Administrator of Development, reported on the many and various activities of the Development committee who, with Shari Lynn at headquarters, are working hard to obtain nondues revenue to supplement the budget, support annual conference and other programs, and otherwise help keep our annual dues as low as possible.

You may have noticed that the cover of this publication has undergone a redesign, breathing new life into this flagship publication of our association. The content of the Journal continues to evolve as well, due in no small part to the efforts led by Editor Lori Alexander. Melanie Ross, Administrator of Publications, reported that other publications are also under way, and that her public relations subcommittee is also gaining momentum in their internal and external public relations efforts. Of note, Melanie plans to continue to publicize AMWA's annual conference community outreach efforts in Atlanta, as we did in Albuquerque. More on that effort to come!

Our Administrator of the Annual Conference, Michele Vivirito, has mobilized a veritable army of volunteer chairs and committee members who have already well begun the Herculean task of organizing the Atlanta conference. Michele shared many of the results of these labors with the EC, and if early indicators are any measure of future success, this is shaping up to be our best, most exciting, and most fun conference ever.

As you may have heard, we offered a record-breaking number of workshops in Albuquerque. Not one to shrink from a challenge, Karen Klein, this year's Annual Conference Workshops Coordinator and EC member at large, has dedicated herself to raising that bar yet again in Atlanta. Working with Dane Russo at headquarters, Karen is seeking to provide the most diverse and innovative curriculum program ever. Of course, she can only complete this task with the generous assistance of our volunteer workshop leaders—the true strength of AMWA's educational program.

Donna Munari presented her report on the activities of the headquarters team (Kathie Bauerle-Berg, Melanie Canahaute, Norine Downs, Bonnie Green, Shari Lynn, Dane Russo, and Ronnie Streff), sharing the successes her able staff are achieving almost daily as they work to support the Administrative Review Committee (ARC), EC, and BOD in their efforts to provide our members with high-quality information, education, and programs that enhance the value of membership.

But even when the EC meeting ended, our work was not done! The group began our regularly scheduled review of AMWA's strategic plan. We examined our strategic goals and objectives, ensuring that each item supported AMWA's mission and vision statements. We will conclude these efforts at the summer EC meeting in July.

These, then, are some highlights, a brief glimpse at the incredible number of programs and policies, developments and decisions, ideas and innovations that reflect the effort and enthusiasm the EC exhibited over 2 days in Atlanta. I applaud the group for their work to date and am eager to see the fruits of their ongoing efforts as we seek to serve you, our colleagues in AMWA.

## Taking Care of Business

As we start our year together, I thought it might be helpful to provide a brief overview of how the association's business gets done.

The elected officers comprise the Administrative Review Committee (ARC), which typically meets with the Executive Director (Donna Munari) in conjunction with each meeting of the Executive Committee (EC) and Board of Directors (BOD). The ARC discusses plans, resources, and accomplishments of headquarters (HQ) staff; acts as a grievance committee for HQ staff; reviews the Executive Director's performance; and—if appropriate—reviews documents prepared for distribution and/or publication. The ARC considers other issues as well, reporting to the EC and BOD as appropriate.

The elected officers, along with the departmental administrators and a member at large, comprise the EC, which meets 4 times per year (on the Saturday of the annual conference, in the winter, in the spring [in conjunction with the BOD meeting], and in the summer). The EC conducts the business of the association and, between meetings of the BOD, performs those functions of the Board not specifically vested in the Board.

# AMWA Endowment Fund Reaches—Exceeds—Goal

By Judi Pepin, PhD

Administrator of Development, 2006-2007

Thanks to our generous members, the Endowment Fund Matching Campaign that was launched at the 2006 Annual Conference in Albuquerque was a resounding success. In the Matching Campaign, all donations made by individuals and chapters by December 31, 2006, were matched by AMWA. A total of \$14,110 was received in contributions, which means that the fund grew by \$28,220 in just 2 months. With these contributions, we have surpassed our initial goal of \$85,000 and, as of January 17, 2007, the Endowment Fund has received more than \$100,200!

A special thank-you to all of the individuals and chapters who have given to the Endowment Fund in the past, gave during the Matching Campaign, and plan on continuing to give each year. Your support to help finance activities consistent with AMWA's mission through this self-sustaining fund will promote the development of new member benefits and services to keep our organization fiscally strong and moving toward the future. Information on the fund and a contribution form are available on the AMWA Web site ([www.amwa.org](http://www.amwa.org)).

Matching Campaign Gifts		Previous Gifts		Previous Gifts	
Gift Level	Donor	Gift Level	Donor	Gift Level	Donor
\$5,000 or more (Leadership Level)	Empire State-Metro New York Chapter	\$5,000 or more	Empire State-Metro New York Chapter	Up to \$100	Leonard Berlow Denise Buckley Jean Cain Natasha Calder Michael L. Coco Ritalinda D'Andrea, PhD Jackie Dial Ellen Drake, BA, CMT Maria Essig Jeremy Fields Lee Ganaway Sherree Geyer Karen Harrop Rebecca Kerkoff Jean Largis Cindy G. Mabe, BSN Ellen McCaffrey Cassie M. McCrary, PharmD Jack D. McCarthy, MD Karen L. McKeown, PhD Anne Neale Kathryn Nelson Antoinette Sevensma Margaret Wilkinson Ruth Wyler-Plaut Barbara Zimmerman, PhD
\$1,500 to \$2,999 (Silver Level)	Southeast Chapter	\$1,000 to \$1,499	Delaware Valley Chapter (3 gifts) Empire State-Metro New York Chapter Greater Chicago Area Chapter Pacific Southwest Chapter (2 gifts) Mid-Atlantic Chapter		
\$1,000 to \$1,499 (Bronze Level)	Delaware Valley Chapter Florida Chapter Lori Alexander, MTPW, ELS	\$500 to \$999	Ohio Valley Chapter Northwest Chapter Marianne Mallia, ELS (2 gifts) Phyllis Minick Southwest Chapter		
\$500 to \$999	Ohio Valley Chapter Pacific Southwest Chapter	\$250 to \$499	Lori Alexander, MTPW, ELS Brian Bass Lori De Milto Kevin Flynn Jane Krauhs (2 gifts) Max Losi, PhD Arnold Melnick, DO J. Maitland Young Robert N. Young, MD		
\$250 to \$499	Bass Advertising and Marketing	\$100 to \$249	AMWA Board of Directors, Spring Meeting 2004 Florida Chapter Greater Chicago Area Chapter Indiana Chapter Alamada Barrett Amanda Barrett Betty J. B. Cohen, PhD Meher M. Dustoor, PhD Bettijane Eisenpreis (2 gifts) Jennifer Fissekis, MA, ELS Doris E. Fletcher Douglas Haneline, PhD (2 gifts) Craig L. Koskela Harold Laufman, MD, PhD Kathleen Loudon, ELS Marjorie A. Murray Barbara Rinehart Elizabeth and Richard Smith Stephen To, BA, MBA Robert N. Young, MD	Nondisclosed	Marijke Adams, PharmD, PhD Susan Aiello, DVM, ELS (2 gifts) Linda W. Bailey Alayne Bakken Lorrie Beauchamp Joan Brodovsky, MS, ELS Anita Frijhoff, PhD Joseph Giaconia Melanie Goodman Dante Toni L. Goldfarb Barbara C. Good, PhD Cindy Hamilton, PharmD, ELS William Kadish Eileen A. McCaffrey Carol B. Shichman J. Elizabeth Coolidge-Stolz Christine Theisen Michele Vivirito (2 gifts) Gennyne Walker Kathy Whitman
\$100 to \$249	Robert E. Brylawski, MD LeeAnn Chastain Maria H. Craig Jennifer Fissekis, MA, ELS Randall Fritz, DVM, ELS Thomas Gegeny, MS, ELS Jane Krauhs, PhD, ELS Rhonda Porterfield, MD Gaylord Throckmorton, PhD				
Up to \$100	Lanie Adamson, MS Julie Crider, PhD Bettijane Eisenpreis Anne B. Giordani, PhD Lydia Green, RPh June Oshiro, PhD, MS Rebecca Palmer, MS Naomi Ruff, PhD, ELS Carol Squires, MA Hilah B. Thomas Stephen To, MBA Barbara Zimmerman, PhD				
Nondisclosed	Cindy Hamilton, PharmD, ELS Paul Mamula, PhD Laura Singer				



## Enhancing Your Chapter Attracting Attendees to Chapter Events

By Kelly Briggman and Caryn Kim

Events Chair/President-Elect and Education Chair for the Greater Chicago Area Chapter

Hosting local chapter conferences and events can provide tangible benefits to members and significant income for the chapter; however, members' busy professional and personal lives present a challenge in attracting attendees. Our experience in organizing events and conferences for the Greater Chicago Area Chapter (GCAC) has shown that selection of interesting workshops and/or topics, a desirable location, ease of registration, and clever promotion are all fundamental in planning a successful, well-attended event. We like to think of our guiding principles as the "Three Cs": conversations, convenience, and connections. What follows is a brief description of each of these concepts and some practical suggestions on how to use them in planning your next educational or social event.

### Selecting a Topic/Course

Conversations: "What's everyone talking about?"

AMWA's members comprise a discerning and eclectic crowd, making the choice of a compelling topic perhaps the greatest challenge in planning a chapter event. The decision can be simplified by determining what topics AMWA members may already be talking about in their conversations with each other. Open sessions held at AMWA annual conferences can be a great resource for determining timely topics of interest. At the 2005 conference, Cheryl Iverson, Chair of the AMA Manual of Style Committee, drew a large crowd with her presentation on the changes in the upcoming edition of the AMA Manual of Style. The GCAC invited Cheryl to give her dynamic presentation and to take questions from chapter members at a local event the following year, and members responded enthusiastically.

The AMWA Journal is another valuable resource for identifying topics that are of interest at the national level and for generating ideas for potential topics at a chapter event. A published conversation about the pros and cons of a scientific versus nonscientific background became a topic of ardent discussion among GCAC's medical writers at a dinner and panel discussion held in 2006. Given members' familiarity with this timeless debate, the event was well-attended and favorably received.

Another practical approach is to consider areas of interest common to all members' medical writing disciplines.

Since medical writers and editors are continually seeking ways to hone their craft, the GCAC hosted a panel discussion highlighting opportunities for continuing education in medical writing and editing. Members actively participated in the question-and-answer portion of the evening, which proved to be a lively and enlightening discussion. In some instances, however, choosing 1 topic that is of interest to everyone may not always be feasible. Offering an assortment of topics over time with the diversity of members' interests and disciplines in mind may be beneficial. The Manual of Procedures for AMWA Chapters provided on AMWA's Web site ([www.amwa.org](http://www.amwa.org)) includes a "Program Suggestions" section that highlights examples of events that have been successful in the past and may provide inspiration for other chapter events.

Factors in selecting workshops for a conference are slightly different from those in selecting a topic for an event. For instance, the selection of workshops is dependent not only on the curriculum offered by AMWA but also on the popularity and availability of instructors. Networking with other members at the annual conferences can be helpful in determining which workshops and/or instructors members have found to be particularly captivating. The reputation of an instructor can be a significant draw for a conference, but the diversity of workshops that they teach also requires consideration. Since many instructors teach only 1 or 2 workshops, this can further limit the workshops to be offered. A list of instructors and the workshops that

### Using AMWA Web Site Resources

Generally speaking, a well-organized event is a well-attended event. The AMWA Web site offers various resources which can be of assistance in better planning and preparing for your local chapter events.

- Chapter Conference Curriculum Handbook
- Publicity Kit
- Manual of Procedures for AMWA Chapters
  - Refer to Program Suggestions
  - Refer to Helpful Hints for Managing a Dinner Meeting

they teach can be found in the Chapter Conference Curriculum Handbook on AMWA's Web site. Chapter organizers are also encouraged to check with headquarters to obtain general information regarding instructors' evaluations and/or teaching awards.

If workshops are selected carefully, a chapter conference can also draw members from outside the local chapter and even nonmembers. Many AMWA members make an effort to complete a core or advanced curriculum certificate in a short period of time, so it is helpful to avoid duplicating workshops offered at other chapter conferences. It is also a good idea to check workshops offered in previous years to avoid repetition from year to year. Offering general workshops usually achieves quick enrollment, but maintaining a balance across disciplines is best. Because advanced workshops draw from a smaller pool of eligible members, it is advisable to limit the number offered; however, the availability of 1 workshop can be enticing for individuals outside the chapter who are limited to 2 advanced workshops at the national conference and may be willing to travel to pursue an advanced certificate.

### The "Three Cs" of Planning Chapter Events

Selecting a Topic/Workshop: Think <b>Conversations</b>	
Event	<ul style="list-style-type: none"> <li>Refer to the <i>AMWA Journal</i> for potential event topics</li> <li>Vary the types of events offered and subjects covered</li> </ul>
Event/Conference	<ul style="list-style-type: none"> <li>Take note of topics/workshops discussed at the Annual Conference</li> <li>Consider common areas of interest across all disciplines</li> </ul>
Conference	<ul style="list-style-type: none"> <li>Avoid repeating workshops at conferences across chapters and from year to year</li> <li>Consider popularity of instructors and workshops that they teach</li> </ul>
Location and Registration: Think <b>Convenience</b>	
Event	<ul style="list-style-type: none"> <li>Offer opportunities across different geographic areas within the chapter borders</li> </ul>
Event/Conference	<ul style="list-style-type: none"> <li>Choose a location that is easily accessible</li> <li>Ensure that the registration process is simple</li> </ul>
Conference	<ul style="list-style-type: none"> <li>Consider a site with free food and parking</li> <li>Keep in mind accessibility (perhaps free shuttle service) and affordability of local accommodations</li> </ul>
Getting the Word Out: Think <b>Connections</b>	
Event/Conference	<ul style="list-style-type: none"> <li>Announce upcoming events via e-mail</li> <li>Post details for both past and future events on the chapter Web site</li> <li>Extend personal invitations to colleagues and other chapter members</li> <li>Promote future events at current events by making an announcement or distributing flyers</li> <li>Notify educators at local colleges or universities</li> <li>Cross-promote events with other writing and editing organizations</li> </ul>

#### Location and Registration

##### Convenience

The GCAC covers a large urban area, so convenient highway access or access via public transportation is generally a consideration in picking the location of an event or conference. Nevertheless, choosing a dynamic or unique setting can outweigh travel inconveniences, especially if efforts are made to host events in various geographic locations to accommodate all members of the chapter.

When choosing a conference location, besides the obvious appeal of a professional setting that is conducive to classroom learning, consider offering a setting that includes other services such as free food and parking. Any attempt to minimize attendees' expenses will help draw more people. Also keep in mind the accessibility and affordability of nearby accommodations. Consider a location near hotels offering free shuttle service to and from the airport or conference location.

Obtaining information and registering for the event or conference should be made as easy as possible. The "Connections" section provides helpful ideas for ways to put this into practice.

#### Promoting an Event/Conference

##### Connections

When promoting a chapter conference or event, the GCAC has found it beneficial to use a variety of communication methods in order to connect with as many people as possible, both inside and outside of the AMWA membership. Perhaps the easiest way to connect with a large group is via electronic sources. The GCAC begins the promotion process of an event by sending an e-mail announcement to local chapter members. Depending on the topic, an additional e-mail may be sent to a subset of the chapter (eg, freelancers) to elaborate on the relevance of the topic to their specialty. In the case of a chapter conference, AMWA members across the globe receive an e-mail announcement from AMWA headquarters. Besides giving the most important details about upcoming events, e-mails include a link to the GCAC Web site, which is also a valuable electronic communication tool. The Web site has the added benefit of being available to nonmembers who are searching for information about medical writing. The GCAC Web site includes a chapter calendar with links to upcoming event details, and photographs and summaries of past events are posted in order to give those who are considering attending a chapter event a

better idea of what they may experience.

Other traditional methods of communication used to attract attendees may be considered old-fashioned, but their effectiveness is timeless. Postcards can easily be posted on a bulletin board or tucked inside a day planner as a reminder to RSVP. Spreading the news by networking with friends and colleagues can also encourage undecided members to attend. Once the chapter has an event in progress, cross-promoting upcoming chapter activities is an efficient way to get the word out. This can be done in many ways, from simply making an announcement at a networking dinner to placing flyers on attendees' chairs at a chapter conference to distributing postcards at the Annual Conference Chapter Meet & Greet.

When looking to draw from an expanded potential audience, there are several methods for connecting with those outside of AMWA. One way to ensure that the information is released to a wide audience in a relatively short amount of time is to submit a press release. AMWA offers helpful suggestions on how to do this in the Publicity Kit that is available on the AMWA Web site. Depending on the topic, it may also be beneficial to notify educators at local colleges or universities of the upcoming event and its relevance to their students. In addition, consider cross-promoting conferences and events with other local organizations for writers and editors.

#### In Conclusion

With so many professional and personal activities vying for AMWA members' time, attracting attendees to chapter events can be a challenge. Whether your next chapter event is a conference, a networking dinner, an election meeting, or a potluck lunch, the principles of the "Three Cs" will help you plan and promote a successful, well-attended event that chapter members will be talking about for a long time to come.

## Resources for AMWA Chapter Officers

By Victoria White, MA, ELS

Administrator of Chapters/Membership, 2006-2007

If you have just become a chapter officer or don't yet know everything there is to know about managing local AMWA activities, head to the AMWA Web site ([www.amwa.org](http://www.amwa.org)) for some assistance.

Click on "Chapters" on the left-hand side of the home page ([www.amwa.org](http://www.amwa.org)) to reveal a list of helpful links. There you will find the Chapter Manual of Procedures, which provides ideas for chapter programs, suggested duties for officers, Web site guidelines, sample financial statements, information about chapter delegate participation in the Board of Directors, and a list of whom in the national office to contact for assistance with a variety of questions.

Also on the Web site, look for the "Tips for Chapters" link. That page offers a list of articles related to chapters that have appeared in the AMWA Journal. The articles cover such topics as setting up a chapter Web site, cultivating new leaders, and organizing a chapter or regional conference.

If you are organizing a conference, be sure to click on the link for the Chapter Conference Curriculum Handbook. The handbook provides a thorough overview of factors you should consider as you develop your program.

Interested in getting some publicity for chapter activities? The AMWA Web site has a publicity kit for chapters, with a sample press release to issue announcements about the election of chapter officers.

The AMWA Web site has many resources for officers, but sometimes there is no substitute for the real-world experience of fellow AMWA members. As a chapter officer, you are eligible to participate in an e-mail list that is designed to foster the sharing of chapter management tips across geographic boundaries. Why struggle with a problem when someone else has already developed a solution?

If you have any questions or suggestions or want to participate in the chapter officer e-mail list, please contact me at [VJWHITE@tampabay.rr.com](mailto:VJWHITE@tampabay.rr.com).

## CHAPTER REPORTS

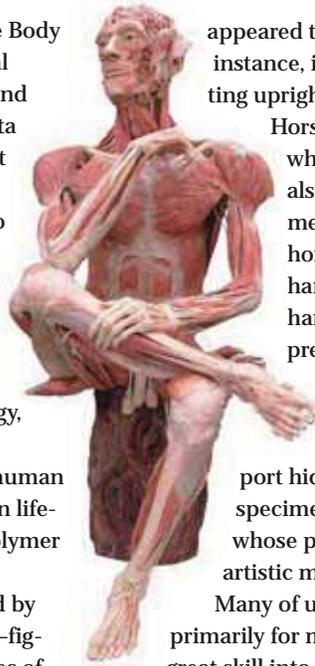
### Southwest Chapter Toured Body Worlds 3 at the Houston Museum of Natural Science

By Hanson Yu, PhD

On July 22, 2006, the Southwest Chapter toured the Body Worlds 3 exhibit at the Houston Museum of Natural Science. Sixty-one enthusiastic chapter members and their families attended the event, organized by Anita Frijhoff, Program Chair, and Ruth SoRelle, Assistant Program Chair. We invited 3 anatomy professors from area universities to serve as our tour guides to help enhance this educational experience. They were Franz Mong, PhD, and Lawrence M. Ross, MD, PhD, of the Department of Neurobiology and Anatomy, The University of Texas Health Science Center at Houston, and Cassius Bordelon, Jr, PhD, of the Department of Molecular and Cellular Biology, Baylor College of Medicine, Houston.

Body Worlds 3 is an anatomical exhibit of real human bodies completely stripped of skin and preserved in life-like poses through the process of plastination, a polymer preservation method invented by Dr. Gunther von Hagens. Initially, some participants felt intimidated by the macabre specimens, which were posed “action-figure style,” revealing well preserved muscles, bundles of nerves, and colored resin-infused blood vessels. But our tour guides eased our anxieties by turning our attention to the anatomic details and artistic aspects of these figures. They pointed out that the different positions of the specimens allowed us to see the interactions of various anatomical structures.

The displays were unique. Some specimens seemed to greet us with lively gestures. Others



**The Ponderer**  
© Gunther von Hagens,  
Institute for Plastination,  
Heidelberg, Germany,  
[www.bodyworlds.com](http://www.bodyworlds.com)

appeared to be engaged in various activities. For instance, in one display several specimens were sitting upright in chairs at a table “playing” cards. “The Horse and Rider” was an elaborate display in which the “rider” sat atop a horse, which had also been preserved with the plastination method. In this display, the rider held the horse’s preserved brain in one outstretched hand and his own preserved brain in his other hand. Both specimens were so fantastically preserved that individual muscle fibers could be seen. The horse was “captured” in mid-gallop with all 4 legs off the ground. The entire display was held aloft by 1 support hidden under the horse’s tail. Many other specimens were very creative, such as the dancer whose preserved muscles were “frozen” in an artistic moment.

Many of us were awed by these specimens prepared primarily for medical education but transformed with great skill into something akin to fine arts. Although we completed the entire tour in less than 2 hours, most of us needed the rest of the day to assimilate this overwhelming and educational experience. This was one fantastic Saturday event for the Southwest Chapter!

Hanson Yu, PhD, is President of UniTech Systems and a scientific consultant of the company’s Toxicology Group in El Paso, TX. Currently, he is also the newsletter editor for the AMWA Southwest Chapter.

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### Taken As Directed, No Adverse Effects!

#### The AMWA Carolinas Chapter OTC Readers Group

By Ernie Hood

It began on a lazy afternoon in August 2006, when AMWA Carolinas Chapter members Jenny Walker and Tracey Fine met for brunch and then browsed in a nearby bookstore. “There was an entire wall of books that were recommended for book clubs,” says Fine. “We were going through that wall, and wishing we had a book club, and it just sort of naturally came up, ‘why don’t we just start one?’”

That’s exactly what they did, and today, thanks to their founding efforts, the OTC Readers is up and running and shows every sign of becoming an institution. The group has held 2 meetings so far, with attendance at the second meeting nearly double that of the first (7, 13,  $p = 0.00001$ ).

The OTC-ers discussed their first book, *Basket Case* by Carl Hiassen, at the group’s inaugural meeting in September. It was a light, summery novel that all present enjoyed, so there wasn’t a great deal of discussion. That left time for participants to establish some of the club’s ground rules, such as meeting bimonthly, with an attendee picking the next restaurant meeting site and the next tome to be consumed and digested.

The second OTC session was an entirely different affair. With 13 readers of Jodi Picoult’s *My Sister’s Keeper* in attendance, the pizza dinner needed no added spice, as a lively and occasionally heated discussion ensued. The book’s end-

ing (read it for yourself and see what you think) was particularly controversial. Next up on the OTC formulary? Middlesex, the Pulitzer Prize-winning, gender-bending novel by Jeffrey Eugenides. As one ecstatic reviewer put it, "To call Middlesex a coming-of-age novel about a hermaphrodite would be like calling The Odyssey a story about some guy on a boat. Middlesex is nothing short of epic...."

Why "OTC?" The idea is for the reading to be "nonprescribed and nonprofessional," according to Walker, who came up with the name (the abbreviation that stands for over-the-counter drugs). The books selected for the group are to be recreational. "As medical writers, all day long we read all this material that we have to read for our jobs, but outside of work, we all like to read novels," says Fine. "Also, we thought it might be a way to get other people in the chapter to participate in something they would think is fun."

Another key to the group's success has been its open-door policy—all are welcome to attend, whether chapter members or not, whether medical writers or not. The group's credo says it all: Nonprescribed reading for the professional medical writer—and friends.

*When I get a little money, I buy books; and if any is left, I buy food and clothes.*

– Desiderius Erasmus (1465-1536)

Ernie Hood is a freelance science writer based in Hillsborough, NC. He also produces and hosts "Radio In Vivo," on WCOM-FM, Carrboro, NC, an interview program focusing on scientific activities and personalities from the Research Triangle Park area and beyond. Podcasts are available at <http://communityradio.coop/Podcasts/Radio-In-Vivo.xml>.

## 2007 Chapter Conferences

### Pacific Southwest Chapter

April 15-18, 2007

Asilomar Conference Grounds  
Pacific Grove, CA

Statistics for Medical Writers and Editors (G) [110]

Bart Harvey

Understanding Sample Size and Study Power (ADV) [729]

Bart Harvey

Sentence Structure and Patterns (G) [109]

Susan E. Aiello

Essentials of Copyediting (EW) [204]

Susan E. Aiello

Contact: Sue Hudson

[suehudson@sbcglobal.net](mailto:suehudson@sbcglobal.net)

### Canada Chapter

April 28-29, 2007

Radisson Hotel  
Kingston, ON, Canada

Project Management (PH) [411]

Art Gertel

Electronic Regulatory Submissions (PH) [406]

Art Gertel

Making Effective Slides (EW) [210]

Bart Harvey and Lawrence Giraudi

Writing Abstracts (EW/PH) [221]

Howard M. Smith and Carolyn Brown

Estimating—The Key to Making Money (NC)

Jennifer Latham

Working with the Pharmaceutical

Advertising Advisory Board (PAAB) (NC)

Ray Chesesiuik

**→The Canada Chapter will host the BELS exam preceding the conference on Friday, April 27.**

Contact: Julie Bishop

[amwacanada2007@hotmail.com](mailto:amwacanada2007@hotmail.com)

(613) 747-3679

### New England Chapter

May 5, 2007

Sturbridge Host Hotel & Conference Center  
Sturbridge, MA

Effective Paragraphing (G) [103]

Susan E. Aiello

Tables and Graphs [pharm. approach] (G) [111]

Jennifer Ann Fissekis

Essentials of Copyediting (EW) [204]

Susan E. Aiello

The Internet: How and Where to Find the Information You Seek (EW/FL) [232]

Thomas P. Gegeny

Microsoft Office™ for Presentations:

Creating Figures, Slides, and Posters (NC)

Laurie B. LaRusso

The Writer's Role in Video, CD-ROM, and Web-based Programs (NC)

Thea Chalow

Contact: Judy Linn

[judyhlinn@aol.com](mailto:judyhlinn@aol.com)

(508) 358-7071

### Carolinas Chapter

May 4, 2007

Friday Center for Continuing Education  
Chapel Hill, NC

Basics of Human Anatomy and Physiology (G) [227]

MaryAnn Foote

Writing the Final Report of Clinical Trial

(PH) [414][406]

Howard Smith

Statistics for Medical Writers and Editors (G) [110]

Bart Harvey

Understanding Sample Size and Study Power (ADV) [729]

Bart Harvey

Contact: Tara Hun-Dorris

[tara@thdeditorial.com](mailto:tara@thdeditorial.com)

### Northwest Chapter

May 5, 2007

Talaris Conference Center  
Seattle, WA

Courses TBD

Contact: Adi Ferrara

[adi@adiferrara.com](mailto:adi@adiferrara.com)

**→The Northwest Chapter will host the BELS exam preceding the conference on Friday, May 4.**

### Mid-Atlantic Chapter

May 19, 2007

Residence Inn by Marriott,  
Alexandria-Old Town, Alexandria, VA

Electronic Regulatory Submissions (PH) [406]

Art Gertel

Strategies for Improving Document Quality for Pharmaceutical Communications

Managers (ADV) [722]

Art Gertel

Bibliographic Resources for Medical Communicators (G) [102]

Joan Nilson

Computer Searching the Medical Literature (ADV) [707]

Joan Nilson

Contact: Jean Picarelli Dzierzak

[jpicarelli@yahoo.com](mailto:jpicarelli@yahoo.com)

(703) 902-1304 or (703) 963-5770

### Rocky Mountain Chapter

Niwot Inn

Niwot, CO (near Boulder, CO)

Writing and Designing Materials for Patient Education (EW/PRAM) [224]

Thomas A. Lang

Improving Comprehension: Theories and Research Findings (EW/ED) [207]

Thomas A. Lang

Contact: Julie Gelderloos

[gelderloosmw@msn.com](mailto:gelderloosmw@msn.com)

(303) 554-5814

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  - Vision care
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  - 401(k) plan
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  - Paid corporate holidays
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# MEMBER MUSINGS

## Curriculum Certificates Earned in 2006

The following AMWA members completed the requirements for an advanced or a core curriculum certificate in 2006.

### Advanced Curriculum Certificates

Wendy Alexander-Adams, ELS  
Margaret M. Boe, RN  
Crescence M. Bookstein, PhD  
Jodi Braunton, MA  
Laura Hale Brockway, ELS  
Christina W. Chambers, MA, ELS  
Elaine Crabtree, MA, ELS  
Svetlana V. Dominguez, BA  
Meher M. Dustoor, PhD  
Deborah S. Frisby, MA  
Maxine A. Gere, MS  
Anna J. Hagen, PhD, ELS  
Shirley Hilden, PhD  
Lila J. Lande  
J. Donna LeBlanc, MS, ELS  
Angela J. McArthur, PhD, ELS  
Pamela E. McDaniel, RPh  
Ruth A. Muenzen  
Gayle Nicholas Scott, PharmD, ELS  
Susan C. Short, BS  
Ann M. Sutton  
Cindy Taylor, PhD  
Elaine B. Taylor  
Vicki Vemuri  
Alice J. West

### Core Curriculum Certificates

#### Editing/Writing

Kimberly B. Aamodt, PharmD  
Susan Abraham  
Cheryl Ann Alexander, PhD  
Nicola Bond  
Barbara A. Boughton  
Merridy Bradley, BSc, MMsl  
Douglas D. Bratman, BA  
Kelly M. Briggman, BA  
Kristy Brunskill  
Catherine A. Carfagna  
Ting H. Chang, PhD  
Corie M. Coffman, BS  
Ashley W. Collinsworth, BA  
Melissa Cooper, MSc  
Briget M. da Graca, MS

Tejal Dalal  
Alyssa R. Dallas, BA  
Jean Picarelli Dzierzak  
John Ellison  
Peter M. Fairfield  
Mary L. Fitzgerald, MS, RN  
Christopher Froncek  
Julia R. Gage, PhD  
Teresa Greenstreet  
Andrew R. Grounds  
Heather A. Haley, MS  
Michelle Grimaud Haus  
Scott Hulka  
Deborah A. Hutchins, PhD, ELS  
Nancy J. Jacobs  
Catherine M. Jarrell, MA  
Susanne Justice, BS  
Carol L. Kasper  
Terry Keyser  
Nicole C. Kouvel, PharmD  
Diane J. Lattanzio, MPH  
Patricia Lightfoot, PhD  
Henry Masters III  
David Lee Mitchell IV  
Rebecca J. Nelson, MA  
Rebecca O'Dell, BS  
Kristi A. Overgaard, BSc  
Stephen N. Palmer, PhD, ELS  
Barbara A. Payne, PharmD  
Carol A. Pearce, BA, MFA  
Lori Keys Pender, MPH, ELS  
Tim Peoples  
Janice L. Perry, RN, BSN  
David M. Peterson, PharmD  
Margaret K. Plummer  
Prudence L. Roaf, MPH  
Mason W. Robbins, MS, CCRP  
Regina Rosen  
Tegra A. Rosera, MA, MS  
Debra Sachs, MS  
Sharon L. Schwoch  
Ellen Shen, PhD  
Elaine G. Sherman, BS  
Michelle Shuffett  
Alexis Simmons  
Melanie A. Simpson, PhD  
Garrett D. Sparks  
Gerald V. Stanton, MD

Ann Stedronsky, BA  
Leigh Ann Topfer, MLS  
Terry Trimmingham  
Margaret B. Tueth, BSN, MA  
Fredrick W. Vansaun, MD  
Anne von Rosenbach  
Jane Warren, MTPW  
Kristina M. Wasson-Blader, PhD  
Diane M. Wolden  
Alison F. Woo, MS, ELS  
Susan Wood  
Susan M. Zeilinga  
Holly B. Zoog, PhD

### Freelance

Cheryl L. Bunch, PharmD, BCPS  
Ruth Martinez, RPh  
Joanne M. McAndrews, PhD  
Jennifer E. Withers, ELS  
Sandra C. Woodhead-Lyons, BSc

### Multidisciplinary

Tamara D. Ball, MD  
Anna Binda, PhD  
Lonnie K. Christiansen, ELS  
Rebecca A. Complin, BS, RDMS  
Adi Ferrara, BS  
Anita F. W. Frijhoff, PhD  
John G. Hand, Jr, BA  
Emma J. Hitt, PhD  
Cynthia L. Hooper, MA  
Andra Kennah, PA, MS  
Brita Lehmann, MD, PhD  
Denise E. Masoner, MS, MBA  
Frances McFarland Horne, PhD, MA  
Vivian McGee, MTSC  
Tari L. Neiffer  
Monica Nicosia, PhD  
Joi S. Ninomoto, PharmD  
Cheri L. Osteen, PhD  
Katherine Ott, MSW, ELS  
Paula K. Price  
Laura E. Singer

Dorothy Takacs, MS, BA  
Sylvia Phuong Tat  
Kristi B. Weber, BS, MT

### Pharmaceutical

Elizabeth A. Agostinelli, MA  
Roberta S. Allen, PhD  
Catherine E. Baj-Lindsey, PsyD, RN  
Patricia K. Bartling, MLS, MS  
Janice Jamison Beck, BSN  
Beverly A. Beebe, BA  
Torrance Brooksfüller, MA  
Jason M. Bruen  
Kate R. Buchert, MSc  
Natasha M. Calder, MA  
Karen A. Clossey, MSEH  
Diana L. Fisher, MS  
Elizabeth C. Froom, PharmD  
Hisako Fujii, DVM, PhD  
Kathleen A. Gardner  
Julie A. Gelderloos, PhD  
Valerie L. Gerlach, PhD  
Karen R. Hartman, PhD  
Terry L. Jopke  
Shahnaz B. Khan, MPH  
Nancy La Sota, MN, RN  
Sherri L. Lipper

Jennifer G. Martin  
Shruthi Mukund, BS  
Diane Murphy, MBA  
Ruth M. Noland, PharmD  
Mary E. Pritchard  
Cheryl Purdie, RN  
Mark W. Rogers, BA  
Steve L. Roper  
Erica F. Schirmer, MS, MBA  
Sujata Shah, BS  
Dee A. Simmons, RN, BA  
Elizabeth Stiker  
Man-yea Tang, MS  
Sharon Tellyer, DVM, ELS  
Ruth A. Tickel-Logan, MS  
Rita C. Tomlin, MT  
Jane Warren, MTPW

Public Relations/  
Advertising/Marketing  
Gregory Cuca, MS, ELS

## AMWA Members Earn Professional Development Certificates

By Barbara Snyder, MA  
Administrator of Education, 2006-2007

AMWA's Professional Development Certificate (PDC) is a great way for you to demonstrate to your employer or your clients that you are committed to professional development beyond the scope of your regular job. You can earn a PDC by participating in qualifying activities such as attending chapter meetings, serving on committees, attending non-AMWA conferences, teaching, writing, and other similar activities. Each of the 20 qualifying activities has a point value, which ranges from 5 to 25. You can earn a PDC every 2 years by accruing 50 points during that period.

The following members have earned a PDC since the program was established in 2004.

Lanie Adamson, MS	Deborah Ann McClellan, PhD
Susan Bairnsfather, BSc	Arnold Melnick, DO
Diane Bell, ScD	Jennifer L. Minigh, PhD
Lisa C. Blatt, MA	Gary D. Novack, PhD
Christina Chambers, MA, ELS	Helen Osborne, Med, OTR/L
Elliott Churchill, MS, MA	Elizabeth A. Pector, BA, MD
Brenda Clapper, PhD	Judith M. Pepin, PhD
Wim D'Haese, PhD	William Perlman, PhD
Deborah A. Early, PhD	Rhana Pike, MA, ELS
Genevieve-Anne Gaudreau, MSc, MBA	Timothy Pingelton, MFA
Thomas Gegeny, MS, ELS	Barbara Rinehart, MS
Barbara C. Good, PhD	Frances Smith, PhD
Jennifer Grodberg, PhD	Barbara Snyder, MA
Douglas Haneline, PhD	Wendell C. Taylor, PhD, MPH
Bart Harvey, MD, PhD	Melinda Tanzola, PhD
Jane M. Krauhs, PhD, ELS	Ruth "Sam" Uhl
Devora Krischer, ELS	Anne Marie Weber-Main, PhD
Anita P. Kuan, PhD	
Dana J. Lawrence, DC	
Lisa M. Lines, ELS	

Check out the AMWA Web site ([www.amwa.org](http://www.amwa.org)) to download the application form and a voucher to verify chapter meeting attendance. The Education Committee will review each submitted application to verify that it is complete and correct. Successful applicants will receive certificates approximately 8 weeks after submitting the application.

## AMWA Members Earning New BELS Certificates

At the 2006 AMWA Annual Conference in Albuquerque, 17 AMWA members passed the certification examination given by the Board of Editors in the Life Sciences (BELS). (See page 32 for dates of upcoming BELS examinations.)

Kristen J. Brunskill, ELS  
Aurora, CO

Natasha Calder, ELS  
Seabrook, TX

Charlotte Crowder, MPH, ELS  
Brooksville, ME

Elizabeth Endres, ELS  
Seattle, WA

Lori Engelhardt, MA, ELS  
Malden, MA

Hope J. Lafferty, MA, ELS  
New York, NY

Vanessa F. LeFevre, MS, ELS  
Cambridge, MA

Lisa Lines, ELS  
Maynard, MA

Alice V. Luddington, ELS  
Mahwah, NJ

Camille S. Martin, ELS  
Athens, GA

Anne Mattarella, ELS  
Placitas, NM

Sharon Schwoch, ELS  
Boulder, CO

Gertrude Stoddert, ELS  
Tampa, FL

Deborah L. von Rechenberg, ELS  
Waltham, MA

Holly A. Wagner, ELS  
Webberville, MI

Dana D. Wise, PhD, ELS  
Tucson, AZ

Jeanie F. Woodruff, ELS  
Nassau Bay, TX

## Member Profile: Art Gertel

By Bettijane Eisenpreis

From the beginning, Art Gertel's career has been one not so much of opportunity sought as opportunity accepted. In the words of that immortal sage, Yogi Berra: "When you reach a fork in the road—take it."

On a career path as a bench scientist, Art was doing early pharmaceutical product testing for a small contract laboratory to put himself through graduate school, when he was asked to write up the study reports in support of getting approval for clinical testing. "Writing has always been effortless for me, so I said yes. It seemed like a very nice symbiosis between the science, which I was intrinsically interested in, and the writing, which was easy," he says.

After 2 increasingly responsible jobs as a science writer, he applied for a position at the Revlon Health Care Group in Tuckahoe, New York, whose director of medical writing was Max Losi, later president of AMWA. Losi asked him to come to an AMWA annual conference in Kansas City for the interview and Gertel, who had never heard of AMWA, came, joined, had the interview, and got the job.

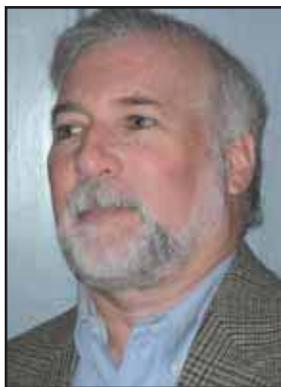
"I had been at Revlon a few years when the Pharmaceutical Section Chair of AMWA resigned, and Max asked whether I would fill in," he says. "Once I said yes, I couldn't escape. They must have realized that I lack the NO gene, so I just kept digging myself deeper and deeper into the inner workings of the organization."

In 1988, Art became director of medical communication for Schering-Plough in Kenilworth, NJ, a position he held for the next 11 years. During his tenure, the department grew from a skeleton staff of 4 to about 32 people. "I think we had one of the class regulatory medical writing departments in the industry," he says.

Since 1998, he has held increasingly senior management-level positions in the pharmaceutical industry. For the past 5 years, he has been Vice President of the Beardsworth Consulting Group, Flemington, NJ, a contract research organization, in charge of medical writing, regulatory affairs, quality assurance, and strategic development.

Like most of AMWA's top leaders, Art has always made time for the organization, despite his busy career. After holding a number of Board-level positions and teaching at virtually every annual conference, he served as President in 1997-1998. Two presidential accomplishments in which he takes pride were strengthening international ties and creating a discipline for the budgeting and planning process.

"One of my soap box issues is that we are a global profession and we should act like a global profession," he says. In 1992, he represented AMWA at a conference of medical writers in Brussels and attempted to persuade the group to become an AMWA affiliate. "Half the people in attendance



walked out of the room in protest," he says. "They felt that AMWA was trying to stick its big foot into Europe and take over what they viewed as a European

organization, a clear case of 'reverse colonialism.'"

He refused to give up. In 1994, the European Medical Writers Association (EMWA) was formally created and he was appointed to AMWA's International Task Force, becoming its Chair the following year. He has attended every EMWA annual meeting since its founding, and the organization awarded him its first fellowship.

"Art Gertel was instrumental in helping establish an independent European Medical Writers Association," comments Dr. Barry Drees, a former EMWA President. "I was closely involved in this process from the European side and was always inspired and motivated by Art's vision, enthusiasm, and energy. I developed an immense respect for the kind of man that Art is and am honored to say that he became a good friend."

Art's involvement in AMWA's budget process began when, as President-Elect, he was charged with helping to develop a budget for the coming year. He introduced AMWA to systematic budgeting and Excel spreadsheets. As President, he invited a financial planner to help the organization maximize its investments and endowed the Bartleby Fund, to be used for promotion and development of AMWA.

In the years since his presidency, Art has remained a vital force in AMWA, serving on key committees and the Journal Advisory Board and leading workshops at annual conferences, including the last one.

"AMWA really takes to heart the spirit of sharing and helping people to develop their professional skills. Members feel an obligation to nurture fledgling medical writers. I think that's wonderful and so unusual in this world of protectiveness and self-aggrandizement," he says.

"Art is the pesky little brother I never had," says AMWA Past President Barbara Good. "He's funny, he's smart, he's smooth, he's a great diplomat, he's a good teacher, and he has all kinds of esoteric knowledge that he's always surprising you with. In all the years I've known him, he's been like that and never changed. We sort of grew up on the Executive Committee together and have a lot of in-common memories of the people who ran AMWA in the '80s and '90s. I consider my friendship with him one of the best I've made in AMWA."



In this issue of the AMWA Journal, we introduce *Page Break* as a new column that describes the challenges—and rewards—of balancing work and home life. The essays presented in *Page Break* will not provide tips on how to find that balance; there will be no bullet lists, no outlines, and no references cited. Instead, in this space will be scenes that illustrate the ways in which medical communicators honor commitments to their jobs, families, and themselves. *Page Break* was conceived by Jennifer King, PhD, ELS, of the Carolinas Chapter, who is president of her own company, August Editorial, Inc., in Durham, NC, and is the mother of a young son. In recognition of the need for work/home life balance for medical writers in a variety of settings, essays in *Page Break* will alternate between those written by King, who works part-time, and those written by an AMWA member who is employed full-time. That writer will be introduced in the June issue of the Journal.

## Wasting Time

By Jennifer King, PhD, ELS

“Swing?” my son, Erik, says to me in a tone that holds both a question and a command. We are going to his grandmother’s house and have just come through a trail in the woods. At the end of the trail is a swing that Erik considers an old friend, one he wants to stay with awhile.

On this particular day I am in a hurry. A deadline for a manuscript looms, and I have yet to synthesize the current data on viral resistance to nucleoside therapies for chronic hepatitis B and lay it out as a thought leader would. My mother-in-law offered to watch Erik while I get a few more hours of work in. As Erik settles into the back and forth of the bucket swing, I think about how much time we are wasting.

But as my son points to the swing next to him, which happens to be for big people, I can’t help but be grateful for the invitation. He is rapidly approaching 2 years. Already he is independently walking around, eating, and making friends. He will soon be extending invitations to these friends and not to me, the person who gets milk for him at 3 in the morning and makes sure he has clean clothes to wear and a dry bottom beneath them.

It is a chilly December afternoon in North Carolina. As I sit down on the swing, the wooden structure supporting it groans. A leaf blower is humming on a neighboring street, and the smell of motor oil is in the air.

I swing opposite my son—he is facing the street, and I face the woods. He smiles at me for this trick. The tip of his nose is red, and his hands are tucked into the pockets of his fleece jacket. Putting his hands in his pockets is a new skill. Every one of these new skills brings the thrill of pride and the stab of heartbreak to me.

Yet still, I have work to do. This project is for a new client, one that I’d like to work with in the future. The story with this manuscript was the same for the last manuscript and will be the same for the next one, too—the client wants it good, fast, and within budget. I have always delivered on past assignments, but will I be able to again?

The swing continues to creak with each advance and retreat. The leaves have fallen for the year. There are dried up black-eyed Susans across the street. The orange light casts a long shadow of my son. As he watches it move back and forth, I tell him, “shadow.”

With no one to push him, Erik and the swing come to rest. I stand up and ask him, “Don’t you want to go to Grandma’s house?” I need to get back. I am supposed to be working, not wasting time.

“Swing,” he says to me as he nods his head. His blue eyes are watery from the cold but unwavering.

This deadline will come and go, as will this day and my son. I nod, give him a push, and sit back down next to him. And then I swing.

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