

CSE Journal Editors' Convocation Addresses Peer Review, Authorship

Hilary K Pritchard

The Council of Science Editors held its first convocation for journal editors on 18 October 2000 at the University of California, San Francisco (UCSF). The convocation was organized by Michael Callaham, Drummond Rennie, and Susan Eastwood, who chairs the CSE Editors Network Task Force. Those in attendance included research and clinical faculty from UCSF, UC Berkeley, UC Davis, Stanford University, and the University of the Pacific who serve as editors-in-chief, associate editors, members of editorial boards, and reviewers for a variety of scientific journals. Science writers and editors from those universities and from local scientific and biotechnical companies were also in the audience. The convocation focused largely on peer review and authorship; a synopsis is provided below.

Peer Review: History and Current Questions

Callaham—chairman of CSE's Editorial Policy Committee, deputy editor of *Annals of Emergency Medicine*, and professor and chief of the Division of Emergency Medicine at UCSF—opened the convocation with an overview of the history, objectives, and research on the peer-review process. He began by summarizing the history of peer review, noting that the practice was rare at scientific journals before World War II. Up to that time most journals were owned and edited by people whose families then inherited the tasks with the journals. The journals individually developed their own systems for peer review of manuscripts; as a result, the systems varied considerably between journals. Peer review of grant

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proposals evolved separately and began earlier, around 1937; it was perhaps more purposeful and better thought out.

The balance of the presentation was organized around several key questions about peer review and the published research on those questions. Among the objectives of peer review, quality assurance is probably the one most often assumed by readers; in the eyes of many, peer review serves as a validation process. It works well in detecting errors and can be effective in spotting sloppy science, poor methodology, omissions, and misstatements. A constructive critical review can help authors improve the quality of their manuscript and its readability. However, peer review is not reliable for detecting statistical errors, nor is it a good way to identify fraud in science.

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The existing system of peer review is a voluntary pursuit undertaken by untrained amateurs. These reviewers have their own biases, many of them lack expertise in editing and writing, usually only one or two of them see a particular paper, and their assessments do not always agree. The process at most journals insulates reviewers from accountability for their recommendations, and some readers feel that

peer review perpetuates the status quo, rewarding the most prominent authors rather than the most meritorious work. Considering those difficulties, some critics of the current system believe it to be unfair, unreliable, or both. Others believe that true peer review occurs only after publication, when readers can comment on and critique the paper.

Callaham suggested that peer review be regarded as a diagnostic test and held to the same standards as any other test. The qualities of a well-conducted peer review should include validity, reproducibility, sensitivity, and specificity. Published studies have taken various approaches in assessing the value and quality of peer review; although most attribute some improvement in manuscripts to peer review, the changes are often small and variable.

The quality of reviews depends, naturally, on the selection of reviewers. However, methods for selecting qualified and competent new reviewers remain unpublished. Only about 50% of journal editors in the United States rate their reviewers. Similarly, explicit instructions to reviewers and standards of review quality are not consistently presented by the journals.

Rennie—a former president of CSE, deputy editor of the *Journal of the American Medical Association*, and professor of medicine at UCSF's Institute for Health Policy Studies—sees the elimination of bias as the editor's most important job. By that, he explained, he meant all kinds of bias—hierarchical and social as well as scientific. He described a Swedish study that found significant sex bias that effectively held women to higher standards than men in both the publication and the promotion processes.

Callaham noted that some studies indicated that masking authors' names and institutions on manuscripts during peer review had resulted in a higher

percentage of manuscripts rated excellent and also produced higher-quality reviews. However, other studies of masking have found no such differences. He compared masking of authors' identities on manuscripts with the common practice of having musicians try out behind screens to mask their identities. In Callahan's view, the perception of fairness is important even if no measurably different outcomes are noted, and masking helps in this regard. What is needed, he said, is better methods for selecting and training reviewers. Although training courses for reviewers have been presented and have often been highly rated by the participants, no one has published evidence to demonstrate measurable improvements in the quality of reviews as a result of such courses.

Given the criticisms of and problems with the current peer-review system, what is the alternative? John Takayama, associate editor of the *Western Journal of Medicine*, asked why reviews were not published with papers so that readers could address questions to both reviewers and authors. Some journals have tried Web-based open reviews and have invited and published comments and criticisms, but most of these have generated little response and only a few changes in papers.

Robert Bhisitkul, associate editor of the *British Journal of Ophthalmology* and assistant clinical professor of ophthalmology at UCSF, asked whether we needed any peer review at all. Why not publish all submissions? Stanton Glantz, professor of cardiology at UCSF, commented that peer review, however flawed, is a helpful system to both authors and editors. "Being an editor is like swimming up a waterfall", Glantz remarked. Peer review helps editors deal with the tremendous numbers of manuscripts submitted. And as an author he has found the review process helpful in improving papers—not always, but often.

That said, Glantz pointed out a random factor in peer review that is sometimes denied, ignored, or overlooked. He believes that the random factor can be more crucial in the grant-review process,

where a single opponent with sufficient conviction can sway a study section, than in the journal-review process, where conflicting reviews are adjudicated by the editor. Part of an editor's job is to know the reviewers so that their resulting reviews can be normalized or curved in the editorial process. Glantz also noted the lack of research on the peer-review process used in awarding grants. Zach Hall, vice chancellor for research at UCSF and a former editor of *Neuron*, agreed that part of being a good editor is choosing good reviewers. He noted that sometimes a reviewer from outside the field can be a more effective and objective judge of the importance of a paper, in that most scientists are biased in favor of their own disciplines and find them inherently interesting.

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Authorship Issues

The next section of the program dealt with issues of authorship. Rennie, the presenter, described the conferences held in Nottingham (1996) and Berkeley (1998) to define the problems related to authorship in biomedical research and to begin seeking solutions. The Authorship Task Force was established—under the joint sponsorship of CSE, the *British Medical Journal*, *The Lancet*, and the *Annals of Internal Medicine*—to explore these issues, collect information, review published work on the topic, initiate studies, and report on progress at the CSE meeting in Montreal in 1999.

Problems in authorship include what Rennie referred to as "the three Gs: guests, ghosts, and gifts". As an example, Rennie

described how a company will write an in-house review, then send the resulting paper to a noted authority in the field and offer a fee if the expert agrees to appear as sole author of the published review. MaryAnn Foote, director of the Medical Writing Department at Amgen Inc, noted that not all private corporations participate in the unethical practices cited in Rennie's example. Some companies have high ethical standards and honor their employees' professional allegiance to be scientists first.

Rennie cited other examples, such as multiple publications based on the same study and the same data, but listing different coauthors or a different sequence of names. Collaborative science requires coauthorship, but Rennie pointed out that many coauthors seem to expect full credit for the publication while accepting little or no responsibility for the work. He sees the disconnect between credit and responsibility as the core of the authorship problem.

Further confusing the issues of credit and responsibility are the meanings often inferred from the sequence of coauthors' names. Presumably the coauthors know what they intended the sequence of names to convey, but they may not have realized that conventions vary considerably among disciplines. Each specialty believes that it knows what the sequence of names means and that everyone understands how the system works. What they don't recognize is that each reader may have his or her own equally confident—but different—interpretation of the sequence.

In an attempt to help authors, the International Committee of Medical Journal Editors published criteria for authorship in 1985; however, most researchers either were unaware of these criteria or disagreed with them. The conferences on authorship held in Nottingham and Berkeley sought new ways to resolve the issues. One result is that several journals have begun publishing lists of the contributions of all participants in studies. Such lists of contributors give explicit insight into the roles of those listed as coauthors, thereby overcoming some of the confusion related to sequences of authors' names. Those journals are also

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examining the responses of their authors, editorial staff, and readers to the contributorship system and are periodically reporting results that become available.

Glantz asked how editors can best respond to after-the-fact letters noting disputes on authorship. Rennie gave examples of minor matters, such as an accidental oversight, that can be resolved simply and corrected in a way that ensures indexing and cross referencing in secondary sources. More contentious issues can be resolved only locally and should be referred to the appropriate persons at the authors' institutions. Often, unilateral decisions about authorship are based on power or authority rather than on the value of effort or contribution to the work.

Eastwood—director of the Publications and Grants Division in the Department of Neurological Surgery at UCSF, a former president of CSE, and a co-organizer of the convocation—suggested that it would be helpful for journal editors to discuss authorship issues with postdoctoral appointees and junior faculty. She has found that most of them do not understand how editors think or how they approach these issues. As a result, there are many misconceptions that, if left uncorrected, can mislead future researchers.

As Rennie pointed out, the process of assigning authorship can be a salutary and interesting exercise. It is useful, moral, and often helpful to reflect on what has actually been done, and by whom, at the end of the study, as opposed to considering

only the intended roles of the participants in the planning stages.

This was the first of several convocations of journal editors that CSE intends to sponsor in universities and research institutions under the auspices of its Editors Network Task Force. The intent of the program is to develop self-perpetuating networks of journal editors within institutions who are committed to educating both young researchers and inexperienced journal editors about high standards in scientific reporting, reviewing, and publishing. 

***Fourth International Congress
on Peer Review in Biomedical
Publication
14-16 September 2001
Barcelona, Spain***

This congress, organized by *JAMA* and the *BMJ* Publishing Group, will feature 3 days of research presentations. For information, see www.ama-assn.org/peer or contact Annette Flanagin, *JAMA*, 515 N State Street, Chicago, IL 60610, telephone 312-464-2432, fax 312-464-5824, e-mail annette_flanagin@ama-assn.org.