

## Editor, Keep Your Ears Open to the Rest of the World

In the just-past January-February issue, Sambunjak<sup>1</sup> makes clear what can attract one to serving as an editor of a medical journal. He suggests what tasks and skills one should master to serve adequately in that post. His catalog is accurate, but I think he misses one skill. It is one that may benefit the authors and readers of only a single journal, but it can be one that brings gains for the quality and efficiency of most, or even all, journals in the same field. That skill is the ability—and willingness—to hear what is said in the world outside the editor's immediate setting and to consider translating it into new benefits for journal readers. In my career as an editor, I saw examples of "hearing an outside voice" and saw benefit from translating the message into action; here I describe three. They may make a case for the value of such "hearing".

### The Voice from Seattle

Back in the 1960s, Augusta Litwer, the assistant to the eminent nephrologist Belding Scribner in the University of Washington School of Medicine and typist of papers he was preparing for medical-journal publication, tired of having to retype a manuscript when a paper was rejected by one journal and was to be submitted to another that had formats for bibliographic references different from those of the first. She complained to the editors of some major American clinical journals<sup>2</sup> about the silliness of having different formats in journals going to essentially the same audiences. How Litwer's voice led to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals<sup>3</sup> has been told in these pages<sup>4</sup> a few years back but merits a brief account here.

Litwer's complaint was addressed to several editors of major clinical journals. They met a few months later and eventually agreed informally to adopt, for the 18 journals for which they held editorial responsibility, the reference formats used by the National Library of Medicine (NLM) in its cataloging publication *Index Medicus*. But the agreement<sup>5</sup> covered only

American clinical journals and only a fraction of them. It was not until Stephen Lock, then editor of *British Medical Journal*, and I, with some other American editors, met in 1978 and agreed to adopt NLM's reference formats that Litwer's complaint had widespread international consequences. That meeting, which launched the International Committee of Medical Journal Editors, led in time to the adoption of those formats by at least 500 medical journals<sup>6</sup> around the world.

### The Voice of Cynthia Mulrow: Better Evidence Needed for Conclusions Reached in Review Articles

The most frequently cited type of article published in medical journals has been the review article, a synopsis and resulting synthesis that offer guidance to physicians in various aspects of medical care. In 1987, Cynthia Mulrow, who was then not a journal editor, published an important paper<sup>7,8</sup> that said, in effect, "Hold on, you medical-journal editors. Do you realize that you are publishing review articles that you do not hold to the same standard of evidence for conclusions reached that you expect of papers reporting laboratory or clinical research?" Probably most medical-journal editors considering review articles at that time for possible publication did send them out for peer review. Reviewers might report back their view of the soundness of the review's conclusions or point out some primary sources the review had "overlooked" or "omitted". Mulrow's central point was that authors of review articles should be expected to report in the review explicitly and in detail what sources they had searched for, why, how, and what criteria were applied for decisions on what sources were deemed to be adequate support for conclusions reached in the review. Certainly in the editorial office of *Annals of Internal Medicine* we had never considered the points she raised in her critique of reviews in coming to decisions on which reviews to publish. We were impressed<sup>9</sup> by Mulrow's critique and moved immediately to apply her stan-

dards thereafter in editorial decisions on reviews. So here is another example of an “outsider” who caught our ears and changed our practices.

### **A Voice from 1840 Is Finally Heard by Clinical Journals: The Confidence Interval**

In the 1980s, probably all clinical journals of real substance expected reports of research—be they of laboratory studies, clinical trials, or other kinds yielding quantitative data—to justify conclusions drawn from the data with appropriate inferential statistical analysis. The common statistical method used was hypothesis testing with the yield of a *P* value. That state of affairs in clinical journals was probably in large part the consequence of growing attention in the immediate post–World War II period to the need for getting adequate statistical support for findings in expensive-to-run clinical trials. An alternative inferential method, calculation of the confidence interval, had been used in other fields, notably epidemiology, but not in clinical journals. Advocates of wider use of the confidence interval in clinical studies began to surface, notably Kenneth Rothman<sup>10</sup> in 1978 and Richard Simon<sup>11</sup> in 1986. In the late 1980s and the 1990s, more advocacy surfaced in a variety of journals, and the reporting of confidence intervals in papers in clinical medical journals increased substantially.<sup>12</sup> The current edition<sup>3</sup> of the widely influential Uniform Requirements document of the International Committee of Medical Journal Editors strongly recommends the use of confidence intervals:

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). Avoid relying solely on statistical hypothesis testing, such as the use of *P* values, which fails to

convey important information about effect size.

In 2000, Altman<sup>12</sup> reported that despite the advocacies in the late 1980s and the 1990s, reporting of confidence intervals in journals in medicine and the medical sciences was still quite spotty. What the situation is now, in 2007, I do not know in detail, but the reporting of confidence intervals has gone up substantially in major clinical journals.

Ironically, of the three influential “voices” I point to in this paper, the advocacies in the last 3 decades of the 20th century of the confidence interval are only an echo of the first such voice, that of Jules Gavarret, a century and a half ago. In his pioneering book on medical statistics<sup>13</sup> published in 1840, he strongly advocated the use of *le calcul des probabilités* (the calculation of probabilities) for judgments on the efficacy of treatments. This calculation was a mathematical method that was, in essence, closely akin to today’s confidence interval, but it yielded a range of slightly more than 99% of “probably true values” for the variable under analysis, such as a recovery rate from a treatment, rather than the confidence interval’s 95% range. But Gavarret’s advocacy of his “calcul” had little or no influence on medical reporting and apparently was unknown even to Jerzy Neyman,<sup>14</sup> who introduced the confidence interval in 1934.<sup>15</sup> It took close to another century for Neyman’s concept to influence clinical medical journals, mainly through the “voices” of advocates like Rothman.

### **Closing Advice**

So, journal editors, keep your ears open. “Voices” from outside your usual orbit may have something helpful to tell you and free you from the prison of your intellectual habits.

### **References**

1. Sambunjak D. Following the inner call: life of a fledgling editor. *Sci Ed* 2007;30(1):26-27.
2. Altman LK. Medical journals to standardize: secretary wins battle on style for references. *New York*

Times 1970 Jan 25:68.

3. International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals. [www.icmje.org](http://www.icmje.org). Accessed 18 February 2007.

4. Huth EJ, Case K. The URM: twenty-five years old. *Sci Ed* 2004;27(1):17-21.

5. Huth EJ. Standard forms for references. *Ann Intern Med* 1970;72:139.

6. International Committee of Medical Journal Editors. Journals that have requested inclusion on the list of publications that follow the ICMJE's Uniform Requirements for Manuscripts Submitted to Biomedical Journals. [www.icmje.org/jrnlist.html](http://www.icmje.org/jrnlist.html). Accessed 18 February 2007.

7. Mulrow CD. The medical review article: state of the science. *Ann Intern Med* 1987;106:485-488.

8. Chalmers I. Improving the quality and dissemination of reviews of clinical research. In: Lock S, editor. *The future of medical journals: in commemoration of 150 years of the Br Med J*. London: British Medical Journal; 1991:127-146.

9. Huth EJ. Needed: review articles with more scientific rigor. *Ann Intern Med* 1987;106:470-471.

10. Rothman KJ. A show of confidence. *N Engl J Med* 1978;299:1362-1363.

11. Simon R. Confidence intervals for reporting results of clinical trials. *Ann Intern Med* 1986;105:429-435.

12. Altman DG. Confidence intervals in practice. In: Altman DG, Machin D, Bryant TN, Gardner MJ. *Statistics with confidence: confidence intervals and statistical guidelines*. 2nd edition. London: BMJ Books; 2000:6-14.

13. Huth EJ. Jules Gavarret's *Principes généraux de statistique médicale*: a pioneering text on the statistical analysis of the results of treatments. [www.jameslindlibrary.org](http://www.jameslindlibrary.org). Accessed 19 February 2007.

14. Fienberg SE, Tanur JM. Neyman J. In: Heyde CC, Seneta E. *Statisticians of the centuries*. New York: Springer; 2001:444-448.

15. Neyman J. On the two different aspects of the representative method: the method of stratified sampling and the method of purposive selection. *J R Stat Soc* 1934;94:558-625.