

## Peer Review and Technical Editing in Biomedical Journals: What Do We Know About the Effects?

In 1990, Drummond Rennie noted that “the vast majority of papers written about editorial peer review” were “composed in the absence of any data and were editorial effusions that expressed individual biases” (JAMA 1990;263:1317). He went on to say that “scientific investigations in this field were woefully lacking”. More than a dozen years later, has the situation improved? The short answer is no.

I recently updated a literature search on peer review and, despite unearthing over 250 references, found only a handful of rigorous studies. Despite the small numbers, some colleagues and I thought it would be helpful to synthesize the findings of the well-conducted studies, so we undertook the Peer Review And Technical Editing Systematic reviews (which gave us the swashbuckling acronym PIRATES). The reviews have been published in the Cochrane Library ([www.cochrane.org](http://www.cochrane.org)); shorter versions appear in the *Journal of the American Medical Association*.

**Jefferson T, Alderson P, Wager E, Davidoff F. Effects of editorial peer review: a systematic review. JAMA 2002;287:2784-6. Full version in Cochrane Library, Issue 1, 2003. [www.cochrane.org](http://www.cochrane.org).**

Of 135 publications that we retrieved as possibly relevant from among the several thousand identified by our searches on peer review, just 19 met our inclusion criteria. Nearly all examined relatively minor aspects of the peer-review process, such as the effects of concealing author or reviewer identity (nine), using checklists (two), training reviewers (two), and methods of communicating with reviewers (two). Just one study attempted to compare the quality of papers published in peer-reviewed and non-peer-reviewed journals, but, because it was not randomized, it was hard to interpret. More reassuringly, two before-and-after studies concluded that published articles were slightly more readable and of higher quality than the original submitted versions.

**Wager E, Middleton P. Effects of**

**technical editing in biomedical journals: a systematic review. JAMA 2002;287:2821-4. Full version in Cochrane Library, Issue 1, 2003. [www.cochrane.org](http://www.cochrane.org).**

Another review concentrated on technical editing, which we defined as everything that happens to articles between acceptance and publication. Again, only 11 studies met our criteria. Two were the before-and-after studies included in the other review; another two measured readability and reached similar conclusions. We found over 40 papers that measured reference accuracy but only three that studied interventions designed to increase it. Another three looked at the editing of abstracts, and one at the effects of instructions for authors. We concluded that the package of measures applied to papers—at least in the largest, well-staffed general medical journals—improves their quality, but we have no idea which interventions are most effective or whether some might even be harmful.

**Jefferson T, Wager E, Davidoff F. Measuring the quality of editorial peer review. JAMA 2002;287:2786-90.**

We were so struck by the diversity of studies and their focus on peripheral aspects rather than the big questions of how peer review affects the quality of the medical literature that we reviewed the many rating scales used (mostly peculiar to specific studies and nonvalidated). We concluded that without a consensus about the primary function of peer review it was impossible to measure its quality.

Our reviews have several limitations. First, they are limited to biomedicine because that is the Cochrane Collaboration's focus. Second, one might question whether methods developed to synthesize medical data can be applied to peer review. Third, we must remember that absence of evidence of effect does not necessarily constitute evidence of absence of effect, but there is plenty of room for creative studies of this important activity.

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