Expanding Options for Scientific Publication
Is More Always Better?

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Using a creative and original methodology, Fosbøl et al document in the December 11, 2012, issue of Circulation that approximately one third of abstracts presented at the annual meetings of the American Heart Association, the American College of Cardiology, and the European Society of Cardiology result in a published peer-reviewed manuscript within 2 years. In addition, Fosbøl and colleagues report that compared with abstracts presented at either the American College of Cardiology or the European Society of Cardiology meetings, those presented at the American Heart Association meeting are more likely to result in a peer-reviewed print publication within 2 years and are more likely to appear in journals with a higher citation index. Consistent with shifting attendance rates over the past decade, the authors further document that the European Society of Cardiology meeting has surpassed the American College of Cardiology meeting with respect to eventual publication, but that the American Heart Association meeting, with its greater emphasis on basic as well as translational science, remains the meeting of choice for cardiovascular investigators worldwide. As shown in related work in this arena, factors associated with a higher likelihood of subsequent publication included basic research, prospective study design, and randomized trials. Though not discussed in detail, the data from Fosbøl and colleagues also document what editors know to be true, that an increasing share of the world’s scientific literature is proportionally coming from Europe, Asia, and South America.

Most of these findings, elegantly documented by Fosbøl and colleagues, will not surprise those who have followed research trends over the past 20 years. In their discussion, however, the authors suggest that the eventual full-length publication of only 1 in 3 abstracts is far from ideal and that the clinical and scientific communities would be better served if all data were published and as rapidly as possible.

We are not so sure.

In some instances, more has proven to be better. Broader availability of published material has been particularly beneficial in those areas in which subspecialty care has expanded and requires considerable technical expertise. As examples from the cardiovascular arena, the 5 Circulation subspecialty journals that were established in 2008 already have Institute for Scientific Information (ISI) citation rates similar to or greater than those of the American Journal of Cardiology and the American Heart Journal, 2 venerable general cardiology journals with decades of reputation behind them. Similarly, in 2008, the Journal of the American College of Cardiology presented 2 new journals dedicated to imaging and cardiovascular interventions that have also found rapid acceptance among investigators and readers. All 7 of these newer journals, staffed by high-quality editors and attracting high-quality investigations, have respectable ISI impact factors that range between 4.3 and 5.5. (For reference, a current impact factor of 1 for a given journal indicates that articles published in 2009 and 2010 have been cited up to the end of 2011, on average, 1 time). Thus, using this conventional measure, all of these new journals are having a positive impact on research, teaching, and patient care. Their parent journals, Circulation and the Journal of the American College of Cardiology, remain the overall leaders in cardiovascular medicine, with impact factors of 14.7 and 14.2, respectively.

Across the full range of journals, however, we are less sanguine that more is in fact better. According to the ISI, the number of medical and scientific journals increased 49% between 2000 and 2012, with 8281 journals now in circulation (Figure, left panel). This has been accompanied by a marked increase in the total number of manuscripts (Figure, right panel). In 2012, it is estimated that in PubMed alone, the number of scientific articles published worldwide will surpass 1.1 million, averaging 126 per hour. Across all disciplines and languages, the total number of publications is estimated to be twice as high. Open access journals and electronic format publishing have contributed greatly to this exponential growth. PloS One, the world’s largest journal, published >2000 articles in June 2012 alone. As recently described in an editorial in Nature, one new open-access journal, PeerJ, now offers a flat fee for all you can publish over the course of one’s scientific lifetime.

Whether or not these ever-expanding options for scientific publication represent a net asset is controversial. Although the citation index is an imperfect metric, it does provide a gauge for whether an individual manuscript or an individual journal is influencing peers. According to Eugene Garfield, the founder of the ISI, a great deal of the world’s medical literature is never recognized at all; of the 38 million articles published between 1900 and 2005, approximately half have not been cited a single time. Indeed, 67% of the journals indexed by the ISI (5554 journals) have impact factors <2, and 40% (3301 journals) have impact factors <1.

The opinions expressed in this editorial are not necessarily those of the editors of the American Heart Association. The article about which this editorial is written appeared in the December 11, 2012 issue (Circulation. 2012;126:2819–2825.)

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Circulation is available at http://circ.ahajournals.org
DOI: 10.1161/CIRCULATIONAHA.112.155952
There is nothing inherently wrong about publishing reports that are rarely if ever cited. After all, even a single case report may be highly valuable to a physician faced with a complex but rare patient, just as a unique scientific observation that is unpopular or runs against the status quo may be subject to considerable publication bias. Yet as the data cited by Dr Garfield indicate, these exceptions are unlikely to be the case for the great majority of rarely or never cited publications that nonetheless consume considerable time and expense from reviewers, editors, and publishers. Thus, although Fosbøl and colleagues believe 1 in 3 abstracts reaching print publication is far too few, some may believe it is already too many. Others, like Goldilocks, may consider it just about right.

What investigators and editors seek is quality, and that has not changed since March 1665, when the editors of the Philosophical Transaction of the Royal Society, the first journal exclusively devoted to science, struggled over what to include, what to exclude, and what standards for review might be. Within academia, the criteria underlying publish or perish have shifted from discussions of how many to how important, a change widely applauded. Our instincts are that the 20th century minimalist architect Ludwig Meis van der Rohe got it right by proclaiming, “Less is more,” an issue worth considering in a scientific era increasingly dominated by social media and instant availability rather than considered and careful analysis.

Disclosures
Dr Rifai receives financial compensation from Clinical Chemistry as its editor. Dr Ridker reports no conflicts.

References

KEY WORDS: Editorials ■ information dissemination ■ scientific yield
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Circulation. 2013;127:155-156
doi: 10.1161/CIRCULATIONAHA.112.155952
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2013 American Heart Association, Inc. All rights reserved.
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the
World Wide Web at:
http://circ.ahajournals.org/content/127/2/155

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