

Editorial

Publish or Perish, and the Journal Glut

Did you ever feel the pressure to publish your results before the main objective of your work has been accomplished? For most of us, the answer is yes. Although you may have to try several journals before getting a paper published, you will eventually reap the benefits of your persistence: a long list of publications, accelerated promotions, and increased research funding. The obvious down side includes a rapidly proliferating literature of marginal value and unethical publishing practices. Since the estimated number of readers of the scientific literature is growing much more slowly, we must assume that either we all read substantially more now or many articles remain unnoticed. Yet we concede that new results can be generated more rapidly by modern technologies and that electronic retrieval systems facilitate access to data that otherwise would be buried in the vast bulk of current literature. Hence, an increased publication volume is unavoidable, but it is bloated by unsuitable promotion and funding practices.

Increased publishing activity results in the launching of new journals and the rapid expansion of existing journals. The *Journal of Biological Chemistry* has reached the record mark of 20,000 pages per year! Anyone touring even the best library facilities cannot help but wonder where all these journals will be stored and when libraries will be forced to narrow their scope for complete journal coverage. New journals are usually acquired only if the librarian can cancel subscription to an existing journal, thereby making it extraordinarily difficult to introduce a new journal without a scientific or professional society as the sponsor. As the AAPS is about to embark on a sustained effort to publish and disseminate its scientific output in journals, proceedings, and monographs, we need to evaluate critically our responsibilities and opportunities.

Let me first address the issue of "publish or perish." Undue pressure to publish may contribute to the following undesirable or unethical practices.

1. Marginal Experimental Results. Not enough data are presented to address the main questions of the research. To head off problems with the referees, the study is labeled as preliminary. There really are no preliminary data; the results either support or negate a hypothesis or adequately describe a new phenomenon or technique. If not, it should not be published.

2. Multiple Publication of the Same Results. This practice can cause serious problems, for example, by creating the impression that an adverse drug effect is more prevalent than in reality. Frequently, authors use a single set of new experiments together with already published data that are repeatedly used. One can easily see that there are many gray shades in between ethical and unethical.

3. Salami Slicing, or the Least Publishable Unit. Authors have developed a keen sense of the least amount of data required for publication. On the other hand, referees frequently have opposite opinions, either supporting publication of limited, but readily identifiable results or continually requesting additional experiments, sometimes of questionable merit. Ideally, editors should serve as mediators to reconcile these differing views. However, science does not progress in a linear and predictable fashion, and only hindsight will allow one to judge on the thickness, or importance, of any particular salami slice.

4. Large Number of Coauthors. Return the favor, and your C.V. will flourish. Yet each listed author should have made a specific contribution to the paper and share responsibility for the conduct of the research.

5. Trivial Research. Select a project that will yield publishable results no matter what the outcome, and regardless of its importance.

6. Scientific Fraud. Probably fraud is much less prevalent than the other practices listed above, but it is, nevertheless, of great concern to all scientists.

I strongly recommend that funding agencies and promotion committees in the pharmaceutical sciences adopt new policies that emphasize the quality, rather than the quantity, of scientific publishing. Evaluating only a limited number of the best papers for promotion, hiring, or funding reduces the incentives for multiple publications; such a practice has already been implemented in several academic institutions. I think that 10 papers for promotion to Associate Professor and 20 papers for the Full Professor level are sufficient to document the quality and breadth of the candidate.

How does *Pharmaceutical Research* cope with these problems? It is becoming an increasingly rare privilege to publish your work in a journal that is distributed personally to a large number of your colleagues in several scientific disciplines. Most authors in *Pharmaceutical Research* recognize this privilege, and the quality of manuscript submissions is high, whereas the incidence of salami slicing and preliminary studies among submitted papers is still disturbing as a generic problem. There is no real contradiction in our emphasis on Reports rather than full-length Research Articles, as a finely crafted and concise Report can represent a large body of work. Further, experimental details not germane to the thrust of the paper often deserve complete documentation in a more specialized journal. Nevertheless, a full-length Research Article which requires above-average priority for publication in *Pharmaceutical Research* should represent an unusually valuable contribution to the literature and, thus, an important addition to one's list of publications. Our expert referees and Associate Editors define the quality

criteria separately for each field represented in *Pharmaceutical Research*. For a general journal like this, articles should be of interest not just to a few colleagues and competitors. However, adaptation of novel techniques developed in one field to use in another has become a hallmark of successful research, and thus, highly technical and specialized data are not barred from publication in *Pharmaceutical Research*.

Up to the present time, there were no space restrictions, and the journal was allowed to grow, in order to accommodate all articles that were judged of sufficient priority for publication, despite a tremendous increase in manuscript submissions. We hope to avoid additional restrictions for paper acceptance in the future by further increasing the page volume and by a reviewing process that focuses on the quality of the research. With a growing perception of *Pharmaceutical Research* as a journal of highest scientific standards, authors double their efforts to meet the criteria of publication as determined by their peer referees. For their part, the editors strive to attain the highest quality possible for manuscripts published in *Pharmaceutical Research*.

As a very rough and conservative guess, the AAPS membership publishes 2000–3000 peer-reviewed articles per year. We expect 500 papers to be submitted to *Pharmaceutical Research* for 1990, with approximately 100 coming from non-AAPS scientists, so that 75 to 80% of AAPS papers are being submitted elsewhere. Each of the scientific areas of interest to the AAPS is covered by several independent journals, some of excellent reputation, where research results can be recorded in greater detail than is possible in a mul-

tidisciplinary journal such as *Pharmaceutical Research*. In developing specialized Section journals, the AAPS can exert a stronger influence in these areas, enhance its scientific reputation, and serve the publishing needs of its members. However, the growing difficulties in introducing new journals and restructuring existing journals against fierce competition must be considered. Each AAPS Section journal should have the potential of making a significant contribution to its field and should serve functions that cannot be accommodated by *Pharmaceutical Research*. On the basis of the AAPS publication volume estimated above, it is clear that *Pharmaceutical Research* and sectional journals can readily coexist without too much competition. In order to avoid adding to the journal glut and further diluting the literature, AAPS should preferably adopt existing journals with an established reputation.

During the past annual AAPS meetings, we have seen a vast increase in overall research productivity by its members, both in traditional pharmaceutical areas and in novel directions. Shepherding these activities into a cohesive and strong publication program will become a major challenge for the AAPS. *Pharmaceutical Research* has now assumed a leadership position in the pharmaceutical sciences, but it continues to require full support from the AAPS membership.

Wolfgang Sadée
Editor-in-Chief