
Editorial



On Authorship and Academic Advancement

In a recent issue of the *Annals of Internal Medicine* the editor, E. J. Huth, decried what he termed “irresponsible authorship” and “wasteful publication” as examples of deceit in scientific publication.¹ Abuse of authorship usually consists of the inclusion of names of persons who made no direct contribution to the research effort and could not defend it. Less commonly, names of persons who qualify as authors are omitted. In the past 5 decades the average number of authors of original articles published in the *Annals of Internal Medicine* and *New England Journal of Medicine* has almost quadrupled.² Multiple authorship is often warranted because the complexity of modern medical research may require a variety of skills and techniques that can only be provided by several individuals. Unfortunately the proclivity to multiple authorship cannot be entirely justified on this basis. In an effort to eliminate casual inclusion of unwarranted authors, Huth³ has proposed the following guidelines based on recommendations of the International Committee of Medical Journal Editors:

1. Each author should have participated sufficiently in the work represented by the article to take public responsibility for the content.
2. Participation must include three steps: conception or design of the work represented by the article or analysis and interpretation of the data on both; drafting the article or revising it for critically important content; and final approval of the version to be published.
3. Participation solely in the collection of data (or other evidence) does not justify authorship.
4. Each part of the content of an article critical to its main conclusions and each step in the work that led to its publication must be attributable to at least one author.
5. Persons who have contributed intellectually to the article but whose contributions do not justify authorship may be named and their contribution described, e.g., “advice, critical review of study proposal, data collection, participation in clinical trial.” Such persons must have given their permission

to be named. Technical help must be acknowledged in a separate paragraph.

These guidelines seem eminently sensible and should be generally adopted.

If irresponsible authorship were merely the innocent addition of names as an expression of generosity on the part of the first author, such action might not be considered at all reprehensible and might even be considered laudable. However, it is the rule rather than the exception that authorship is the currency for academic advancement and, as such, is counterfeit when authorship is unjustified.

The pressure to publish to which all medical scientists are subject is not arguable; it is a fact of life—that in many respects is legitimate. Investigators should be expected to demonstrate progress in their work to granting agencies. Publication of the results of research in peer-reviewed journals is an accepted and acceptable means by which to demonstrate progress. The evaluation of a bibliography by an academic promotions committee is one objective way to assess a candidate’s qualifications for advancement. However, in the climate of intense competition in medical academia it is understandable that more is considered better. The perceived need to grind out as many papers as possible increases the risk for deceptive practices. An inordinately high rate of publication has characterized those laboratories where fraud has been discovered.⁴

The pressure to publish many papers leads not only to unwarranted authorship but also to “wasteful publication.” Research is often divided into many papers, the “least publishable unit”⁵ or published repeatedly in chapters, reviews, symposia, or other papers. Prevention of such abuse at the journal level is probably impossible. However, as suggested by Huth,¹ requiring that each author affirm in writing the final version of the manuscript and agrees to its publication and that the paper or the gist of the data therein has not been accepted for publication or actually been published elsewhere may reduce the problem.

An approach from the other side is the recommendation by Angell⁶ that academic promotions committees consider a limited number of papers from a candidate, e.g., the three papers the candidate considers best in any given year with

the maximum of 10 in any 5-year period. This proposal should replace paper counting with a detailed assessment of the research effort.

Less egregious than outright fraud are various forms of deception described by Bailor,⁷ i.e., post hoc hypothesis; multiple comparisons and data dredging; inappropriate statistical tests and other statistical procedures; fragmentation of reports; low statistical power; suppressing, trimming, or "adjusting" data, or undisclosed repetition of "unsatisfactory" experiments; selective reporting of findings.

We should abjure the axiom of "printing only that news which is fit to print," which unfortunately seems to be the principle guiding some authors as they prepare their manuscripts. Signs of this phenomenon are the consistent publication of data with narrow standard errors, data without outliers, the lack of negative studies within an author's bibliography, and the investigator prodigy. Several forms of deceit may arise from ignorance rather than willful intent to deceive. Good quality peer review and alert editorial scrutiny of papers should detect problems of inappropriate statistical analysis, inadequate power, and bias.

Is fraud in medical science a new phenomenon like acquired immune deficiency syndrome or a chronic problem that has become more amenable to detection like prolactinomas? Donaldson⁸ provides some reassurance in her observation that fraud is not unique to twentieth century scientists.⁸ However, we should take little comfort from the fact that susceptibility to deceit is a human frailty and therefore will always be with us. Should we take solace in the argument that deception in medical science may be no more common than in the general population? I think not; for haven't medical scientists survived intense winnowing by gaining admission to and graduating from medical school and completing postgraduate training. Considering the years of self-sacrifice and nobility of the calling of medicine, it might be expected that persons susceptible to corruption would be weeded out. On the other hand, the winnowing process through its intense competition may nurture latent venal characteristics. Petersdorf⁹ argues that the process that ultimately may lead to deceptive behavior probably begins with the "premed syndrome." Cheating is not uncommon by premedical and medical students.

The process is relentless; academic appointments are predicated on the number of papers published, the journals in which they appeared, and the professional societies to which a candidate has gained membership. Added to the pressure to publish is the need to publish in prestigious journals. Academic promotions committees often discount papers unless published in journals at the head of the pecking order. This myopic view runs the risk of deterring young scientists from

worthwhile research because the tangible rewards will be few. For instance, what motivation is there for the investigator to contribute years of effort to multicenter clinical trials other than pure scientific altruism. Publications resulting from such a study will not bear the investigator's name except in a footnote that may list scores of other investigators and probably will appear in journals with broad appeal to the medical community and therefore may not be one of the "prestige journals."

Professionals with common interests naturally band together for the exchange of scientific information and to promote support for their scientific endeavors. A corruption of this phenomenon has been the formation of elite scientific societies. Such organizations could be ignored if it were not for the fact the membership is often a criterion for academic advancement. Members of academic promotions committees are usually members of the same elite societies. The net effect is to increase the publication pressure. An additional Damocles sword is the age limit for membership to some of these societies. Such a criterion is blatantly exclusionary and indicts such societies as being merely clubs. Wouldn't red hair do as well? Such an iconoclastic position taken by the writer invites charges of sour grapes, or worse, patronizing depreciation from the cozy position of membership.

What is all this leading to? Coauthors, editors, reviewers, and readers must be alert to the possibility of deception, or indeed, of fraud in medical science. The yardsticks by which we evaluate the scientific accomplishments of an investigator's need to be revised so that the worth of the science itself is assessed and not the trappings.

JFS

REFERENCES

- ¹ Huth, E. J.: Irresponsible authorship and wasteful publication. *Ann. Intern. Med.* 1986; 104:257-59.
- ² Burman, K. D.: Hanging from the masthead. *Ann. Intern. Med.* 1982; 97:602-605.
- ³ Huth, E. J.: Guidelines on authorship of medical papers. *Ann. Intern. Med.* 1986; 104:269-74.
- ⁴ Woolf, P. K.: Pressure to publish and fraud in science. *Ann. Intern. Med.* 1986; 104:254-56.
- ⁵ Broad, W. J.: The publishing game; getting more for less. *Science* 1981; 211:1137-39.
- ⁶ Angell, M.: Publish or perish: a proposal. *Ann. Intern. Med.* 1986; 104:261-62.
- ⁷ Bailor, J. C., III: Science, statistics and deception. *Ann. Intern. Med.* 1986; 104:259-60.
- ⁸ Donaldson, V. H.: When things are not as they seem. *J. Lab. Clin. Med.* 1984; 103:491-96.
- ⁹ Petersdorf, R. G.: The pathogenesis of fraud in medical science. *Ann. Intern. Med.* 1986; 104:252-54.