

COMMENTARY

Who Wrote This Paper? Basics of Authorship and Ethical Issues

Scientific integrity encompasses a variety of processes related to scientific research and reporting. True scientific integrity requires that the researcher or author be objective, complete, fair, and accurate in reporting results of scientific work. Integrity also requires that appropriate credit be given in authorship to all who participated sufficiently, and that only those who participated sufficiently be recognized. It is only through the avenues of scientific integrity and appropriate application of publication ethics that the accurate reporting of science can be accomplished.

The recent scandals in the *New York Times* and other newspapers involving plagiarism and unethical publication practices have brought some of the issues of publication ethics to the public eye. Additionally, many readers of this journal have had personal experiences involving inappropriate authorship designations, plagiarism, or some other breach of ethical authorship. The commonplace nature of such problems serves to emphasize the need for improvement in behavior and self-policing as a profession with aspirations to ethical and appropriate publication of scientific manuscripts.

WHO IS AN AUTHOR?

No one need doubt who is the author of *Gone With the Wind*. Works of fiction generally are the creation of an individual author. In scientific publications (which we hope are not works of fiction), authorship is conferred not only for writing the words, but also for significant involvement in the work. In these projects, appropriate authorship determination includes decisions both about who is an author and about the most appropriate order of authorship. Hewitt recognized the difficulties inherent to authorship designation as early as 1957, stating:

Authorship cannot be conferred; it may be undertaken by one who will shoulder the responsibility that goes with it. To a responsible writer, an article, with his name on it, is the highest product of his mind and art, his property...founded in his character and evidence of it...The reader of a report issued by two or more authors has a right to assume that each author has some authoritative knowledge of the subject, that each contributed to the investigation, and that each labored on the report to the extent of weighing every word and quantity in it.¹

More recently, the International Committee of Medical Journal Editors suggested three necessary conditions for authorship (all three must be met): conception and

design, drafting or revising the manuscript, and final approval of the version to be published.^{2,3} Some suggest that any coauthor should be able to take responsibility for the entire paper.⁴ Others suggest that all authors should have contributed in a meaningful and identifiable way to the design, performance, analysis, and reporting of the work.⁵ Another criterion for authorship uses anyone who has contributed something essential to the conclusions of the manuscript.³ As evidence of recognition of the numerous difficulties inherent to authorship designation, several journals recently have issued statements about the importance of appropriate authorship designation.⁵⁻¹⁰ Many journals require written designation of contributions of each author, and signatures accepting responsibility for the manuscript. This process allows each contributor to specify his or her actual involvement with specific parts of the project. *Academic Emergency Medicine* will begin this acknowledgment soon.

The first author of any manuscript plays a special role. He or she makes the decision about who will be included as an author, the order of authorship, and any other credits and acknowledgments. The first author has the ultimate responsibility for the content and design of the manuscript, as well as determination of authorship and order listed.¹¹ Other authors should have participated in a meaningful way to the development, planning, execution, and/or writing of the manuscript. Often, but not always, the last author is one who participated in a supervisory role. One interesting study demonstrated great variability in the relative contributions of non-first authors.¹²

INAPPROPRIATE INCLUSION OF AUTHORS (WHY NOT ADD "EVERYONE'S" NAME?)

Over the past decades, the average number of authors on scientific manuscripts has dramatically increased.¹³ This increase is disproportionately high in the life sciences.¹⁴ Numerous articles name authors who do not meet appropriate authorship criteria.¹⁵ The reasons for this increase may include such factors as increased pressure to publish in the academic environment and increased pressure by superiors to be included.¹⁶

Some authors inappropriately include as authors people who have not contributed significantly to the work. This may be related to feelings of obligation to

superiors, attempts to appease colleagues or acquaintances, or the pressures to publish in order to be promoted. Inappropriate inclusion of additional names may also be the result of ignorance of appropriate authorship criteria, or lack of awareness of other avenues of recognizing contributions, such as acknowledgments within the manuscript.

Learners or junior faculty may find it awkward when approached by superiors who have an expectation of inappropriate authorship designation. Though challenging at times, the responsibility of authoritative and fair decisions about authorship should be directly communicated to all involved. The first author has the opportunity and responsibility to make all final authorship determinations. He or she should remember that there are several negative ramifications of inappropriate author inclusion, such as dilution of credit resulting from appropriate authors, or inappropriate inflation of credentials or curriculum vitae.^{17,18}

INAPPROPRIATE OMISSION OF AUTHORS

Some authors mistakenly omit recognition of an author who made a substantial contribution to the manuscript. Ranging from flagrant plagiarism to inadvertent oversight, these types of errors can be destructive to careers, interpersonal relationships, and future collaborative efforts. Once again, the first author must assume responsibility of the appropriate inclusion and recognition of all who made significant contributions, whether as an author or as a contributor who may be recognized as an acknowledgment.

CONCLUSIONS

Academic Emergency Medicine is committed to publication integrity and intellectual honesty. Because journal editors cannot realistically police individual manuscripts and author designations, the responsibility falls upon each author to ensure the scientific integrity of the manuscript, including appropriate credit for all authors and contributors, and avoiding inappropriate inclusion of those who do not meet

authorship criteria.—**Catherine A. Marco, MD** (cmarco2@aol.com), *Associate Editor, Academic Emergency Medicine, and Department of Emergency Medicine, St. Vincent Mercy Medical Center, Toledo, OH*; and **Terri A. Schmidt, MD, MS**, *Department of Emergency Medicine, Oregon Health & Science University, Portland, OR* doi:10.1197/S1069-6563(03)00590-6

References

1. Hewitt RM. The Physician-Writer's Book: Tricks of the Trade of Medical Writing. Philadelphia: W.B. Saunders, 1957, p 312.
2. International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals. JAMA. 1997; 336:309–15.
3. www.icmje.org. accessed June 10, 2003.
4. Anonymous. Games people play with authors' names [editorial]. Nature. 1997; 387:831.
5. Drazen JM, Curfman GD. On authors and contributors. N Engl J Med. 2002; 347:55.
6. Callaham ML. Journal policy on ethics in scientific publication. Ann Emerg Med. 2003; 41:82–9.
7. Smith R. Maintaining the integrity of the scientific record. BMJ. 2001; 323:588.
8. Anonymous. Authorship from the reader's side [editorial]. Ann Intern Med. 1982; 97:613–4.
9. Susser M. Editorial: authors and authorship—reform or abolition? Am J Public Health. 1997; 87:1091–2.
10. Rennie D, Flanagan A, Yank V. The contributions of authors. JAMA. 2000; 284:89–91.
11. Riesenbergs Dand Lundberg GD. The order of authorship: who's on first? JAMA. 1990; 264:1857.
12. Shapiro DW, Wenger NS, Shapiro MF. The contributions of authors to multiauthored biomedical research papers. JAMA. 1994; 271:438–42.
13. Rennie D, Yank V, Emanuel L. When authorship fails. A proposal to make contributors accountable. [erratum appears in JAMA 1998; 279:22]. JAMA. 1997; 278:579–85.
14. Burman KD. Hanging from the masthead: reflections on authorship. Ann Intern Med. 1982; 97:602–5.
15. Flanagan A, Carey LA, Fontanarosa PB, et al. Prevalence of articles with honorary authors and ghost authors in peer-reviewed medical journals. JAMA. 1998; 280:222–4.
16. Rennie D. Authorship! Authorship! Guests, ghosts, grafters, and the two-sided coin. JAMA. 1994; 271:469–71.
17. Committee on Science, Engineering, and Public Policy. On Being a Scientist: Responsible Conduct in Research, 2nd ed. Washington, DC: National Academy Press, 1995.
18. Berk RN. Irresponsible coauthorship. AJR. 1989; 152:719–20.