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Where Is the Honor in Honorary Authorship?[1]

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The Merriam-Webster online dictionary (1) defines *author* as "one that originates or creates." It is an active term. In biomedical research, authorship most commonly involves the creation of new knowledge. The process of scientific authorship is exciting and rewarding. The thrill of new discovery and the resultant recognition by one's peers are a heady mix. The rewards of authorship may be considerable and be related to promotions, success in securing research grants, tenure, and employment as a consultant. No wonder scientific authorship is valued and sought after.

In earlier times, research was commonly performed by a single investigator, so there was an immediate and obvious link from that single person who was both carrying out the investigation and writing the scientific report; they were the same. Over the years, the complexity of scientific investigations, which now frequently span several disciplines and perhaps institutions, has increased. Similarly, the organizational complexity of research institutions has also increased; there commonly are layers of investigators within research groups or departments. Finally, as medical research has become more global, varying cultural norms in different parts of the globe, where respect and appreciation for organizational leaders may mandate a recognition of their contributions to all research work published in their departments or section, have also served to affect the designation of authors of scientific manuscripts.

In the 1980s and 1990s there was increasing evidence (2–4) that the number of authors per article was increasing and that a number of the listed authors in these expanded author lists may not have made important contributions to the research manuscript that was being published. The terms *guest, gift,* or *honorary* author have been used to describe individuals who, although listed on the byline as authors of an article, have not met authorship criteria for active participation in the research, in manuscript drafting, and in manuscript approval (5,6). In 1996, Slone (4) surveyed the first authors of 275 major articles published in *AJR American Journal of Roentgenology* in 1992 and 1993. In that survey, the prevalence of what Slone termed *undeserved authors* averaged 17%, and increased from 9% in articles with three authors to 30% in those with six or more authors. Slone reported that manuscripts with undeserved authors were most likely to include nontenured staff who did meet authorship criteria. He further noted that the most commonly cited reason to include undeserved authors in their manuscripts was the desire for academic promotion. In a subsequent study with a broader sample, Flanagin et al (7) used a confidential survey, which was mailed to the corresponding author, and reported on the prevalence of articles with honorary authors or ghost authors in six peer-reviewed medical journals with varying levels of circulation. In their series, the prevalence of honorary authorship in the six journals ranged from 11%–25% and averaged 19% for the entire group.

With increasing awareness of the scope of the problem of honorary or undeserved authorship, the International Committee of Medical Journal Editors (ICMJE) in 1985 formally established requirements for authorship in biomedical journals (8). These criteria were revised in 2000 and currently include positive adherence to each of the following three items: *(a)* substantial contribution to the study conception and design, the acquisition of data, or the analysis and interpretation of data; *(b)* drafting of the manuscript or critical revision of it for important intellectual content; and *(c)* final approval of the version to be published (9). The ICMJE

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See also the article by Eisenberg et al in this issue.

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criteria explicitly state that "acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship." In day-to-day practice, any author worthy of the name should be able to talk knowledgeably and off the cuff about the aims and findings of their published articles to an interested group for at least 5 minutes, for about 5 years after the article's publication.

In recognition of this area of concern, in 1997 the guidelines for authors in *Radiology* were revised to require each author to identify their contribution to the manuscript. In 1998, *Radiology* began to print these author contributions with the articles (10). In September of 1999, the *Radiology* publication information for authors was revised to more specifically define the expectations for authorship in accordance with the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (8). No doubt, expectations were that by better clarifying the requirements for authorship and by including public statements of these, awareness of the requirements for authorship would increase and the problem of undeserved authorship would decrease. With this in mind, in 2003 Wang and colleagues (11) reviewed the adherence to authorship criteria in articles published in *Radiology* from June of 1998 through December of 2000. Disappointingly, they noted that in articles with more than three authors, only 68% of the listed authors fulfilled the ICMJE criteria; they also found that research from North American authors had a higher percentage of fulfillments (78%) than did work from non–North American authors (57%). These results were consistent with those of Goodman (12), who noted that one-third of authors in a small series of articles reviewed did not meet authorship criteria and those of Shapiro et al (3), who surveyed 1811 research articles and reported that 26% of authors had made insufficient contributions to merit authorship. In their manuscript, Wang and colleagues (11) conclude that there is a need for further education on authorship requirements to improve compliance with these criteria.

Similarly, the editorial board of *European Radiology* has acted in broad agreement with the ICMJE criteria and is moving, with the publisher, toward use of the uniform ICMJE conflicts of interest and authorship forms. It also operates under the umbrella of the Committee of Publication Ethics *(http://www.publicationethics.org/)*. Indeed, that organization has also advised journal editors about various aspects of publication, including authorship (13). To this end, *European Radiology* has, for some time, insisted on the conflict of interest form being signed by a "guarantor" for the entire study. This guarantor may be the tenured senior author, but it could be the head of the department, the research lead, or other tenured staff member who is designated to take overall responsibility for all aspects of the study (ethics, consent, authorship, data handling and storage, and all other aspects of good research practice). Such guarantor status is meant to provide a place for the department head to be acknowledged for the work going on under his or her overall direction but where he or she does not qualify for full authorship. It should also act as a quality control check, allowing any difficulties about authorship to be rectified locally before the paper reaches an editor's desk.

In this issue of *Radiology*, Eisenberg and colleagues (14) intrepidly venture, once more, into this problematic and disturbing arena. They sent a survey to 1038 first authors of all original research articles published in *Radiology* or *European Radiology* during a 3-year period. Surprisingly, of the 29% of first authors responding, 26% believed that one or more of their coauthors did not make a sufficient contribution to allow inclusion as an author, and more than double that percentage noted that one or more coauthors performed only "nonauthor tasks" in the study. In the univariable analysis of their data, significant features associated with first authors' perceptions of the presence of honorary authors on their papers included lower academic rank, fewer peer-reviewed manuscripts published in the past 3 years, and "working in an environment where the section or department head was automatically listed as an author."

Furthermore, Eisenberg and colleagues noted an interesting difference regarding inclusion of senior colleagues as honorary authors in the two journals. There was a greater tendency for the section or department head to be automatically listed as a coauthor of articles in *European Radiology* (33.3%) than in *Radiology* (18.8%). Interestingly, the belief among first authors that such practice was justified was fairly similar for both journals (37% and 33%, respectively). One possible explanation for the greater tendency for the section or department head to be automatically listed as a coauthor in *European Radiology* is that radiologists in European departments may believe that they rely more on patronage from their "chiefs" than do those in American departments. Certainly in those countries where promotion (and thereby salary) continues throughout a radiologist's career, there is every incentive for including one's "chief" as an author. Of course, in some situations, the department or section head is a totally justifiable author and has participated fully in the research. But, given the fact that only around one-third of first authors believe that such inclusion is justified, it seems likely that there is still a substantial amount of gift or honorary authorship in this setting.

Before jumping to conclusions regarding this observed difference, one must consider the distribution of submissions: In 2010, China, Korea, and the United States were the sixth, seventh, and eighth most frequent sources of articles published in *European Radiology*. Thus, it is not a given that all reports published in *European Radiology* have a "European" culture of authorship. Indeed, even in *Radiology,* only around one-half of the published articles come from North America. Further work is needed to really capture differing philosophies in different cultures.

All these factors merely underline the gross variation in the way authors and journals interpret the recommendations from the ICMJE with respect to authorship and the way in which different departments and institutions

view, interpret, and implement these recommendations.

The study of Eisenberg and colleagues (14), particularly when viewed in the context of past studies, demonstrates that we still face a considerable problem in accurately and appropriately recognizing authorship in multiauthored biomedical research. Furthermore, it is clear that our efforts in establishing meaningful authorship criteria and in asking authors to specifically clarify their contributions, as well as in publishing them, have been ineffective in reducing the prevalence of honorary authorship. Taken as a whole, this research bears testimony to the limited control and influence journals and journal editors have on the ethical and cultural views of investigators and research institutions regarding authorship.

Furthermore, the results of the Eisenberg et al study suggest that we need to reconsider our approach to the problem of honorary authorship and, perhaps, redirect our efforts to some extent if we want to address this problem more effectively.

One might wonder if these efforts over the years in trying to ensure that the listed authors have meaningful roles in the creation of their manuscripts are misguided. Some authorities have suggested that research groups are complex intertwined entities in which some workers in the section or group doing clinical work or other important nonauthor tasks allow their colleagues the luxury of performing the investigation that has been reported and that this type of passive contribution to the overall scientific goal should entitle them to authorship (15). It is also possible to make the case that the department head, under whose largesse the research was performed, deserves the recognition afforded by being listed as an author.

Unfortunately, the effects of this potentially exploitative nature of the practice on younger investigators may serve to undermine the professional integrity of the work and ultimately call into question its credibility. If one cannot even believe who wrote the article, how can one believe the article's content? More disturbingly, diffuse assignment of authorship undermines scientific accountability. As has been noted in the past, honorary authors may not be willing to support and stand by the reported results when there are questions regarding their article's conclusions and validity. In two well-known instances of scientific misconduct, senior authors were happy to beg off, saying in effect that they had no real involvement in the research (16,17). Equally important in a training environment rife with honorary authorship, young investigators may come to believe that scientific dishonesty in the guise of career advancement is the norm. Thus, despite these disturbing and unrelenting trends, it does not seem appropriate to abandon our efforts to correctly attribute authorship and to promote accuracy and integrity in all elements of the works we publish.

Many of the reports published over the years on the issue of honorary authorship suggest the need to redouble our efforts in educating authors on the appropriate criteria for authorship. While this is, of course, a laudable goal, the work of Eisenberg and colleagues (5) suggests that lack of information may not be the problem, since in their series 76% of authors said that they personally adhered to the journal requirements for authorship. Alternatively, while not abandoning our efforts to document appropriate authorship criteria, an editor might decide to continue with the current approach in the hopes that increasing awareness will, over time, solve the problem. However, the experience during the past decade suggests that maintaining a steady course is not likely to address the problem adequately.

A reasonable approach may be to recognize a category of contribution that rises above those that would normally be considered for an article's acknowledgment section but does not quite reach the level of contribution required for authorship (5). Thus, authors might choose to list other important contributors whose assistance may consist of only a single component of the effort or under whose guiding tutelage the research was performed. This proposal is appealing on a number of fronts. It recognizes that there are, in fact, a range of contributions to scientific investigations and provides the opportunity for appropriate acknowledgment of section or department leadership in the overall research effort. Implementation of this proposal might, of course, require support by major universities, professional organizations, and PubMed.

Clearly, the problems of authorship transcend individual journals and are rightly the concern of global professional organizations, specialty organizations, medical schools, and department leadership. While some medical schools have clearly described standards for authorship, many have not. In a report in the *Journal of the American Medical Association* published in 1998, Wilcox (18) noted a five-fold increase in the number of complaints related to authorship received by the Office of the Ombudsman at Harvard Medical School (Boston, Mass). She noted the importance of clearly defined guidelines for authorship and the need for involvement of leaders in research groups and departments in disseminating this information and in providing an appropriate tone for resolving disputes. She further suggested the need for independent confidential channels to identify problems and encourage corrective action. For our discipline, positive statements by department leaders indicating their unwillingness to serve as honorary authors would undoubtedly highlight the importance of addressing this issue and in rightfully crediting authorship of manuscripts. Through the combined efforts of professional leadership, medical journals, and authors, we hope to find an appropriate balance to recognize the contributions and avoid awarding inappropriate authorship.

One sad and salutary note on which to end is to point out the way several senior scientists have had their later careers damaged by accepting gift authorship on articles that turned out to be tarnished; the recent latest twist to the measles-mumps-rubella vaccine saga in the United Kingdom is a case in point (19,20).

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References

1. Merriam-Webster online. http://www.merriam-webster.com/dictionary/author.
2. Chew FS. The scientific literature in diagnostic radiology for American readers: a survey and analysis of journals, papers, and authors. AJR Am J Roentgenol 1986;147(5):1055–1061.
3. Shapiro DW, Wenger NS, Shapiro MF. The contributions of authors to multiauthored biomedical research papers. JAMA 1994; 271(6):438–442.
4. Slone RM. Coauthors' contributions to major papers published in the AJR: frequency of undeserved coauthorship. AJR Am J Roentgenol 1996;167(3):571–579.
5. Rennie D, Yank V, Emmanuel L. When authorship fails. A proposal to make contributors accountable. JAMA 1997;278(7):579–585.
6. Rennie D, Flanagin A. Authorship! Authorship! Guests, ghosts, grafters, and the two-sided coin. JAMA 1994;271(6):469–471.
7. Flanagin A, Carey LA, Fontanarosa PB, et al. Prevalence of articles with honorary authors and ghost authors in peer-reviewed medical journals. JAMA 1998;280(3):222–224.
8. International Committee of Medical Journal Editors. Style matters: guidelines on authorship. Br Med J (Clin Res Ed) 1985; 291(6497):722.
9. International Committee of Medical Journal Editors. Authorship and contributorship. http://www.icmje.org/ethical_1author.html.
10. Proto AV. Radiology: 1998 and the future. Radiology 1998;206(1):1–2.
11. Hwang SS, Song HH, Baik JH, et al. Researcher contributions and fulfillment of ICMJE authorship criteria: analysis of author contribution lists in research articles with multiple authors published in *Radiology*. Radiology 2003;226(1):16–23.
12. Goodman NW. Survey of fulfillment of criteria for authorship in published medical research. BMJ 1994;309(6967):1482.
13. Committee of Publication Ethics. Best practice guidelines for journal editors. http://publicationethics.org/files/u2/Best_Practice.pdf.
14. Eisenberg RL, Ngo L, Boiselle PM, Bankier AA. Honorary authorship in radiologic research articles: frequency and associated factors. Radiology 2011;259(2):479–486.
15. Athanasoulis CA. Authors need to be educated on authorship principles. Radiology 2000;217(2):598–599.
16. Culliton BJ. Coping with fraud: the Darsee case. Science 1983;220(4592):31–35.
17. Smith J. Gift authorship: a poisoned chalice? BMJ 1994;309(6967):1456–1457.
18. Wilcox LJ. Authorship: the coin of the realm, the source of complaints. JAMA 1998;280(3): 216–217.
19. Deer B. How the case against the MMR vaccine was fixed. BMJ 2011;342:c5347.
20. Deer B. Secrets of the MMR scare: *The Lancet*'s two days to bury bad news. BMJ 2011;342:c5258.