

# Giving Credit Only Where It Is Due: The Problem Of Defining Authorship

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The question of who should be listed as an author on research articles has attracted considerable debate and controversy in recent decades. Authorship obviously is an important preoccupation of researchers. On a personal level, it represents a public claim to having contributed to scientific knowledge. On a professional level, one's publication record has a significant impact on tenure, promotions, funding, awards and honors, and other career-advancement opportunities. The pressure to "publish or perish" is still a fact of life in the research and scholarly community.

This pressure may result in "author inflation"-giving byline credit to individuals who have made only trivial contributions to published studies. For example, it is not unheard of for laboratory or department heads to routinely add their names to the publications of their staff. Also, some individuals who provide access to essential experimental samples, research facilities, or patient populations expect authorship as a quid pro quo. Furthermore, less well-known authors may invite prominent researchers to share their bylines in the hope of enhancing the visibility of their publications.

Several studies have documented that the average number of authors per paper is steadily rising. In some fields-such as clinical medicine or high-energy physics-author inflation has been conspicuous, with bylines listing dozens of individuals. No doubt, this increase is due in part to changes in the way science is being conducted. While the days of lone-investigator or small-team research are far from over, multi-institutional and multinational collaborations involving large, interdisciplinary teams are becoming more common. But, whatever the contributing factors may be, author inflation inevitably raises concerns that the standards for determining legitimate authorship are being diluted.

This concern has been addressed by many journal editors. Almost 10 years ago, the editor of *Annals of Internal Medicine*, Ed Huth, defined basic criteria for authorship (*Ann. Int. Med.*, 104:269-74, 1986).

These criteria have since been accepted by the International Committee of Medical Journal Editors. And they are now included in the instructions to authors for numerous journals. The first criterion is that all authors should have made a substantial contribution to the conception, design, analysis, or interpretation of data.

They should also have had a hand in writing and revising the manuscript for important intellectual content. And they should have approved the final draft and be able to answer critical comments on the published paper. Ten years later, are these standards being honored? A 1994 survey by David W. Shapiro of San Francisco General Hospital and colleagues indicates that they are not (*JAMA-Journal of the American Medical Association*, 271:438-42, 1994). They sampled 200 basic and clinical research papers with at least four authors published in 1989. And they questioned 184 responding first authors about the contributions of 1,014 out of a total of 1,091 coauthors about whom they had good or excellent knowledge. The result: 28 percent of the coauthors made no significant contribution to the publications! The proportion might even be as high as 36 percent, because the first authors had no good knowledge of 77 coauthors who were not included in the analysis.

Clearly, the Shapiro study needs to be repeated in medicine and other disciplines before one can conclude that author inflation is a real problem in scientific communication. But we cannot ignore the article's shameful finding that one-quarter to one-third of coauthors are taking a free ride on the work of legitimate authors.

What can be done about this? Editors can only go so far. Many now require that each author sign a statement that he or she made a substantial contribution to the study. Editors ought to go a step further and require a similar confirming statement from authors about all their coauthors, not just themselves. Those not deserving a place on the byline should be credited in an acknowledgment. But for this recommendation to work, the tenure/promotion/funding/awards decision-makers need to recognize the value of

these acknowledgments, not just authorship per se.

Ultimately, the responsibility for byline credit rests with all of the authors themselves. They are closest to the research and best know-individually and as a group-who truly deserves to be recognized for their collective effort. By falsely crediting guest or honorary authors, scientists demean the significance of authorship and foster unethical behavior.

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