PERSPECTIVES

Authorship and Bylines

From the ancient Greeks to Shakespeare, the question of authorship often arises. The issue of appropriate article authorship has always been of special interest to editors of scientific journals. In the biomedical sciences, as the complexity and funding of published studies increases, so does the length of the byline. Although a previous *American Journal of Neuroradiology* Editor-in-Chief already addressed this issue, I think it is time to revisit it.[1] From my own experience, articles can be categorized according to the number of authors as follows: fewer than 2 authors (Editorials, Commentaries, Letters), fewer than 5 authors (Case Reports and Technical Notes), 5–10 authors (retrospective full-length articles), 10–15 (prospective, often grant-funded articles), more than 15 authors (reports of task forces, white papers, etc). Among so many authors, it is not uncommon to find individuals whose contributions are minimal and many times questionable. Who actually did enough work to be listed as an author? In other words, who can claim ownership rights in a particular intellectual property?

Academic institutions, scientific societies, and journals often have guidelines regarding authorship but, unfortunately, these are seldom respected. The International Committee of Medical Journal Editors (ICMJE) has proposed authorship guidelines.[2] The National Library of Medicine no longer limits the number of authors listed on MEDLINE (it did before MEDLINE), as long as all meet the ICMJE criteria. The Office of Research Integrity, while dealing with research misconduct, does not deal with authorship issues.[3] Although research institutions in most countries have similar offices, their involvement in regard to byline credit differs. Because works are generally the fruition of groups of individuals, these groups and their lead authors have the greatest input into the order and number of individuals listed in the byline.

The problem with this system is that many authors listed may fall into the categories of guests, ghosts, or, even worse, gifts.[4-6] "Gift authorship" is defined as "either a tribute or a ploy for recognition, with the context of reciprocal exchange or as the consequence of dependence."[7] Gift authorship is not uncommonly offered by junior individuals to senior ones through a sense of obligation. "Ghost authorship" is the opposite and refers to individuals who contributed to the work but were not listed as authors. This also commonly happens, particularly in large-scale projects in which some individuals are paid for data collection and analysis but not directly acknowledged (not an uncommon practice in industry-funded research). Not listing all of those involved is a type of plagiarism, and one study reported that it occurred in 39% of articles![8]

Several reports indicate that individual contributions are lowest in multiauthor articles, and one revealed that 26% of authors did not contribute significantly![9,10] In the field of imaging-related journals, the *American Journal of Roentgenology* reported that undeserved authorship increased with the byline length, reaching 30% in articles with more than 6 authors.[9] On the other hand, contributors who do not want to be listed are avoiding being responsible for the integrity of an article. Research groups choosing authors or their order generally operate in egalitarian or highly hierarchic ways. Regardless of the method used to determine byline order, the implications are enormous as in most institutions order influences promotions. Although some institutions have authorship policies, they are less rigorous than those proposed by ICMJE.[11] At any rate, editors of biomedical journals are quite serious about authorship. Some journals demand disclosure of the specific degree of author involvement, but unfortunately, most editors have little authority to enforce authorship requirements. One reason for this is a lack of consistent guidelines regarding byline listings.

There are 3 consecutive layers of byline responsibility: authors, individual offices of research integrity, and the scientific journals publishing the works. The success of each layer in monitoring appropriate authorship depends on their authority, and thus, I believe particular offices of research integrity are in the best position to monitor this issue (something they are not correctly doing).

What can be done at the author level? Communication and coordination of research at the start of a project are essential. Of course, the ultimate byline order will be determined by the priorities and perspectives of the individuals involved. According to ICMJE, to be qualified as an author, one must meet all the following criteria: significant input into the concept and design of a study and analysis and interpretation of data, writing and revision contributions that are intellectually important, and assumed responsibility with respect to accuracy of the final contents.[2] I know of 6 journals (*American Journal of Public Health, Annals of Internal Medicine, BMJ, Lancet, Physical Therapy,* and *Radiology*) that collect information about author contributions. Some not only publish author contributions but identify those who are guarantors of the integrity of the data (crucial in multiauthor and multicenter projects). Dissemination of data collected by these journals and widespread implementation of contributorship systems may lead to greater responsibility.[3] One study estimated at least one third of journals do not adhere to these guidelines, whereas another found that though 64% of authors met the guidelines, they were not familiar with them.[12]

When contributors do not meet criteria to be credited as authors, it is common to list them at the end of articles in acknowledgments. It has been proposed that acknowledgments be reserved for individuals with limited or purely technical contributions.[13] This leaves the question of how to recognize contributors who fall in the middle, such as those providing patient care. Weighing of author contributions is generally a purely qualitative assessment. The family practice and biostatistics disciplines experimented with qualitative weighing of contributorship with little success.[14,15] One study looked not only at the number of authors but at their academic ranks and found that most authors were either professors or residents.[16]

To give credit to all those involved, dichotomous and trichotomous author categorizations have been suggested.[17] Using this type of system, the concept of one author making a unique contribution would cease.[6] Additionally, others have considered making publications anonymous or listing authors alphabetically, without success.[17] I have been asked by several

contributors about the possibility of listing 2 individuals as first authors, and a dichotomous system would allow us to list a "first" author in the category of the work in which each contributed most. After pondering these systems, I have decided, for the time being, to keep our traditional, simple, 1-level author listing. In order for dichotomous or trichotomous listings to be meaningful, promotion committees and funding agencies would have to recognize these first. One last system has been suggested at the author level: weighing of contributions by a "third" disinterested party. This method may fall into the responsibilities of specific offices of research conduct.

Last century, deconstructionists attempted to break down texts to observe who coveted power and how.[17] In science, we all have witnessed power struggles when it comes to credit for publications. The responsibility of journals for bylines is difficult to assess and impose. Confronting author credit and responsibility is a daily predicament for editors. I have been pleased by the fact that when asked about long bylines, our contributors have always responded responsibly by shifting an excessive number of individuals into acknowledgments or by clearly justifying their degrees of involvement. Author responsibility should be shared by authors, their institutions, and journal editors. Our credibility as researchers depends on this type of responsibility and avoiding abusing it.

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M. Castillo
Editor-in-Chief

Editorial Board Changes: A Short Note

With this issue of *AJNR* the following individuals finish their terms as members of the Editorial Board: Drs. Ackerman, Ball, Bowen, Bradley, Ge, Griffiths, Haughton, Higashida, Maldjian, Post, Russell, Sluzewski, and Turski. The Editor-in-Chief and *AJNR* thank them all for a superb job and hope they will continue to be involved with our activities. At the same time, we welcome the following individuals as members of the Editorial Board: Drs. Lell, Bartynski, Smith, Gupta, du Mesnil de Rochemont, Jayaraman, Toh, Layton, Hirsch, Hoxworth, Murphy, and Aiken. Two specially appointed members are Drs. terBrugge and Krings, who will serve as liaisons in the cooperative effort between *AJNR* and *Interventional Neuroradiology*. In addition, 2 Special Consultants have joined us. Dr. Barker will be focused on the Physics Review content and Dr. Phillips will be preparing our upcoming Podcasts. Our Editorial Board is a "working" one, meaning these new appointees and those remaining will be asked to do significant work. These appointments are at the discretion of the Editor-in-Chief and of 2 years' duration. With these changes, the Editorial Board now has 60 members, a quarter of them international (the number of international members increases from 12 to 15).—*M. Castillo*

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EDITORIAL

Collaboration between the Journals *Interventional Neuroradiology* and *American Journal of Neuroradiology*

It is our pleasure and privilege to comment on the recently announced cooperation between the journal *Interventional Neuroradiology* (*INR*) and the *American Journal of Neuroradiology* (*AJNR*). This collaboration has the potential to significantly impact the functioning of *INR*, its editorial office, and the evolving interrelationship between neuroradiology and interventional neuroradiology.

INR's Perspective

Operating Principles. *INR* was created almost 15 years ago to provide the international community involved in the practice of neurointerventional therapy with a scientific forum to exchange ideas, results of therapy, and research carried out in this rapidly growing field. Its mandate was endorsed by the World Federation of Interventional and Therapeutic Neuroradiology, the South American Working Group in Interventional and Therapeutic Neuroradiology, the Asian and Australian Federation of Interventional and Therapeutic Neuroradiology, and the Japanese Society of NeuroEndovascular Therapy. Collaboration between *INR* and *AJNR* will combine the worldwide experience in *INR* with the academic excellence in neuroradiology publishing as exemplified by *AJNR*. Future strengthening of the relationship between the journals is expected to occur and to result in excellence of scientific exchange at a global level.