Editorial: Responsibilities of Authorship: Justification of the Multiauthored Scientific Paper

Sarah Whitehouse
Raymond C. Mellinger

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Responsibilities of Authorship: Justification of the Multiauthored Scientific Paper

The question of authorship—who qualifies to be an author and who doesn’t—has long been a concern of scientific publishing. Journal editors rely upon authors not only for accurate presentation of valid scientific data but also for ethical representation of authorship. Every editorial office has its stories of the rare plagiarist; of coauthors who battle for top byline billing after the paper has been submitted; of the authors who were unaware that they had been listed as such until contacted by the editors and who then ask to read the paper and revise the content or even remove their names from the byline. These awkward situations not only embarrass the authors but also perplex and frustrate editors, because we cannot predict their occurrence but know how easily they could have been avoided.

To encourage cooperation among coauthors and to ensure ethical representation of authorship, all involved in a publishable scientific study should know the responsibilities that accompany the selection of authors: when to develop the list of authors, how to determine the order in which their names will be listed on the manuscript, and the criteria which justify or disqualify claims to authorship.

Selection of Authors

When to develop the list of authors

The decision on authorship should be made as early as possible, preferably at the start of the study or before the writing of the first draft of the paper (1-4). Edward J. Huth, MD, distinguished editor of the *Annals of Internal Medicine* and leading authority on the subject of authorship, observed that “no failure in scholarly procedure is more likely to breed ill-will and wreck friendships than putting off decisions about authorship to a time when failure to agree may bring unpleasant consequences and even damage careers” (1). For case reports or reviews, a tentative selection of authors is possible at an early stage, but for complicated research studies, the identities of the significant contributors are revealed as the studies progress.

Determining the order of names

The authors should be listed according to their intellectual contribution to the work, with the “first author being acknowledged as the senior author, the second author being the primary associate, the third author possibly being equivalent to the second but more likely having a lesser involvement with the work reported,” and so forth (5). In the past, some authors routinely listed the head of their department or laboratory as the final coauthor whether or not he or she contributed significantly to the work. This was done usually for one of two reasons: 1) to add “weight” to a list of otherwise unknown names to increase the surface value of the manuscript and improve the chance for publication, or 2) to adhere to the policy of having the director’s name on any manuscript reporting work from the group. Although this practice occurs less often than formerly, it is considered unethical by most editors (4-10).

While selecting the order of the coauthors’ names may be fairly simple, determining levels of intellectual input can be difficult for papers with a lengthy list of contributors. Multicenter trials may include 50 or more participants, and editors encourage the use of a group name, with a list of the participating members published as a footnote (1,2,4). Many journals (including this Journal) have published manuscripts listing 14 or more authors. Editors prefer to keep this list to a minimum but cannot determine which authors have legitimate claims and must rely on writers to follow certain guidelines in selecting their list. According to Arnold S. Relman, MD, editor of *The New England Journal of Medicine*, the issue is not the number of authors but the justification of all authors: “The essential criterion is the quality of the intellectual input. A scientific paper is a creative achievement, a record of original productivity, and coauthorship ought to be unequivocal evidence of meaningful participation in the creative effort that produced the paper” (7).

Justification of authorship

In the past ten years, much material has been published regarding justification of authorship (1-7,9,11-16). Dr. Huth’s listing of legitimate versus nonlegitimate claims to authorship is shown in the Table (1). The main qualification of authorship entails that no one be designated as an author unless he or she is prepared to take public responsibility defending the intellectual content of the paper (1-3,6,9,12,14,16). The responsibility of claims to authorship rests primarily with the authors themselves. However, because of the increasing complexity of medical science and the growing trend toward multiple authorship, a group of medical editors met in 1979 and formed the present International Committee of Medical Journal Editors. Their guidelines regarding qualifications for authorship, published previously as separate statements (11,13,15), were recently published in the revised “Uniform Requirements for Manuscripts Submitted to Biomedical Journals” (16). These requirements, included in this

### Table*

<table>
<thead>
<tr>
<th>Basis for Authorship</th>
<th>Justifications for Authorship</th>
<th>Not Legitimate</th>
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<tbody>
<tr>
<td>Genesis of the paper</td>
<td></td>
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<tr>
<td>Research report</td>
<td>Development of a testable hypothesis</td>
<td>Suggestion that legitimate author(s) work on the problem</td>
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<tr>
<td>Case report, clinical observations</td>
<td>First notice of a rarely observed phenomenon</td>
<td>Physician's, nurse’s, pharmacist’s routine referral, care, service</td>
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<tr>
<td>Review</td>
<td>Critical interpretations of reviewed papers and assembled data</td>
<td>Suggestion that the review be written</td>
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<tr>
<td>Research efforts</td>
<td>Development of study design</td>
<td>Suggestion of use of standard study design</td>
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<tr>
<td></td>
<td>Development of new method (laboratory, field, or statistical) or critical modification of previous method</td>
<td>Observations and measurements by routine methods</td>
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<td></td>
<td>Personal collection and analysis of data</td>
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<tr>
<td>Clinical studies</td>
<td>Evaluation of new diagnostic and therapeutic measures</td>
<td>“Routine” diagnostic and therapeutic efforts that would have occurred even if the paper had not been written</td>
</tr>
<tr>
<td>Interpretation of findings</td>
<td>Explanatory insight into unexpected phenomena</td>
<td>Routine explanations, such as electrocardiographic and radiologic reports</td>
</tr>
<tr>
<td>Writing of a paper</td>
<td>Writing of the first draft or critically important revision of concept in a later draft</td>
<td>Solely criticisms of drafts and suggestions for revision of presentation, not ideas</td>
</tr>
<tr>
<td>Responsibility for content</td>
<td>Ability to justify intellectually the conclusions of the paper, including defense of the evidence and counterevidence weighed in reaching the conclusions</td>
<td>Solely attesting to accuracy of individual facts reported</td>
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issue of the Journal’s revised “Instructions for Authors,” define authorship to a degree that should eliminate any confusion:

All persons designated as authors should qualify for authorship. Each author should have participated sufficiently in the work to take public responsibility for the content.

Authorship credit should be based only on substantial contributions to (a) conception and design, or analysis and interpretation of data; (b) drafting the article or revising it critically for important intellectual content; and on (c) final approval of the version to be published. Conditions (a), (b), and (c) must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. General supervision of the research group is also not sufficient for authorship. Any part of an article critical to its main conclusions must be the responsibility of at least one author.

A paper with corporate (collective) authorship must specify the key persons responsible for the article; others contributing to the work should be recognized separately [in the paper or the acknowledgments section].

### A Last Word

Most journals, probably all English language journals, periodically publish detailed instructions regarding manuscript preparation and submission requirements. Although these guidelines provide details from how to arrange the title page to how many manuscript copies to submit to the editor, a large number of manuscripts received by this Journal fail to follow the direction in many respects.

Problems inherent in multiauthored papers have been discussed for decades, and unforeseen problems continue to emerge as medical science evolves. The duty of editors is to assure our readers that our publications represent valid, sound reports written by responsible, ethical people. The duty of authors is to be scrupulously honest in their representation of authorship. As Hewitt (10) wrote over 30 years ago in “The Physician-Writer’s Book”:

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, as nearly flawless as he can make it, founded in his character and evidence of it. If that describes the acceptable standard, medical writers, a responsible group, are in present need of reconsidering the implications of joint authorship. 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.

The standard of medical writing is the same now as it was then; we ask our authors to abide by this standard, not only to respect it but to accept it.

Sarah Whitehouse, MAW
Managing Editor

Raymond C. Mellinger, MD
Editor

References