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Responsibilities of Authorship^{*}

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P H Y S I C I A N S[®]



Responsibilities of Authorship*

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Publishing is a necessary fact of life for researchers, required for both promotion opportunities and continued funding. For collaborative projects, the pressure to publish can lead to tension among legitimate coauthors over the order of authorship and to abuse of the process by researchers wishing to pad their resumes. Prospective authors may also feel pressure to manipulate their data or misrepresent their findings to increase the likelihood that a given manuscript will be published or to make the results more palatable to their funders. Guidelines to help determine what constitutes authorship and the responsibilities of authorship are therefore needed. Fortunately, such guidance is available.

WHAT CONSTITUTES AUTHORSHIP?

Most biomedical journals, including *CHEST*, adhere to the “Uniform Requirements for Manuscripts Submitted to Biomedical Journals,”¹ published by the International Committee of Medical Journal Editors. According to this document, which is regularly updated and available online, authors must satisfy all three of the following conditions:

1. “Substantially contribute” to the conception and design of the study, the acquisition of the data, or the analysis/interpretation of data;
2. Participate in drafting the article or revising it critically for intellectual content; and
3. Review and approve the final, submitted version.

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As part of the manuscript review process, many journals now seek to quantify these criteria and ask all authors to formally attest, in writing, to their contributions to the paper. This practice is intended to discourage abuses of authorship.

Although the exact definition of what constitutes a “substantial contribution” in criterion No. 1 is purposely left vague, Browner² has characterized it as an “intellectual contribution” and adds that “People who did just what they were told—no matter how well they did it—do not meet the requirements for authorship.” For example, he suggests that a statistical analyst who only executes an analysis plan designed by someone else has not made an intellectual contribution. In this case, the person who designed the analysis plan presumably would be included, and increasing numbers of journals are now requesting that statisticians be listed as authors on papers that rely considerably on statistical analysis.

ETHICAL RESPONSIBILITIES OF AUTHORS

Authors are responsible for ensuring that their study methods and findings are honestly reported and that the study was carried out in accordance with generally accepted ethical standards. In particular, outright misconduct, such as falsification of data, fabrication of data, and plagiarism, is considered especially reprehensible and can irreparably damage an author’s career. A greater risk to the credibility of published findings may be posed, however, by less serious practices that do not constitute “misconduct” *per se*.

Martinson et al³ reported on the results of a survey administered to several thousand early-career and mid-career scientists whose work was funded by the National Institutes of Health. The survey found that one third reported engaging in one or more questionable practices during the past 3 years (Table 1). The authors concluded that “mundane ‘regular’ misbehaviours present greater threats to the scientific enterprise than those caused by high-profile misconduct cases such as fraud.”

Table 1—Percentage of Scientists Who Reported That They Engaged in Unethical Behavior Within the Last 3 Years (n = 3,247)*

Variables	All	Mid-Career	Early-Career
Failure to present data that contradict one's own previous research	6.0	6.5	5.3
Changing the design, methodology, or results of a study in response to pressure from a funding source	15.5	20.6	9.5
Inappropriately assigning authorship credit	10.0	12.3	7.4
Withholding details of methodology or results in papers or proposals	10.8	12.4	8.9
Dropping observations or data points from analyses based on a gut feeling that they were inaccurate	15.3	14.3	16.5

*Data are presented as %. Excerpted from Martinson et al³; reprinted by permission of Macmillan Publisher Ltd (copyright 2005).

The Uniform Requirements reference widely accepted standards for reporting results of a variety of specific types of studies (Table 2). For example, many journals have adopted the Consolidated Standards of Reporting Trials (or CONSORT) initiative as the standard format for reporting the results of randomized clinical trials. The Quality of Reporting of Meta-Analyses (or QUOROM) statement covers the reporting of metaanalyses.

DETERMINING AUTHORSHIP AND ORDER OF LISTING

Before writing begins, those involved in a study should determine who is to be the lead or first author and what is expected of that individual. Planning ahead in this way can avoid hard feelings and loss of momentum during the writing process, particularly where the lead author is not the principal investigator of the study. Similarly, the lead author should state explicitly when asking for input on a paper what is being asked and whether the individual should expect authorship in return for the input.

The lead author is responsible for developing the initial draft of the manuscript, and has final say

regarding the wording and content of the paper. The lead author is responsible for assuring that the coauthors satisfy their responsibilities as authors and for dropping from the manuscript any author who does not meet these responsibilities.

The lead author typically determines the order in which the remaining authors will be listed, although this also may be determined by consensus. The order of authorship should ideally reflect the relative level of intellectual contribution of the coauthors. For collaborative papers reporting on large studies and involving numerous coauthors, it may not be possible to accurately construct such an ordering. In such cases, coauthors are sometimes listed in alphabetical order either after the first author or after the first few authors. This fact may be indicated on the title page of the submitted manuscript and is sometimes noted by the journal. Another exception to a strict ordering by level of contribution is the use of the so-called "senior author" position, in which the senior member of a research team may choose to be listed last.

Since it is always easier to add authors than to remove them, listing the authors on early drafts as "your name and others to be determined" can save

Table 2—Reporting Guidelines for Specific Study Designs*

Type of Study	Initiative	Source†
Randomized controlled trials	CONSORT	http://www.consort-statement.org
Studies of diagnostic accuracy	STARD	http://www.consort-statement.org/Initiatives/newstard.htm
Meta-analyses and systematic reviews	QUOROM	http://www.consort-statement.org/Evidence/evidence.html#quorom
Observational studies in epidemiology	STROBE	http://www.strobe-statement.org
Meta-analyses of observational studies in epidemiology	MOOSE	http://www.consort-statement.org/Initiatives/MOOSE/moose.pdf

*CONSORT = Consolidated Standards of Reporting Trials; QUOROM = Quality of Reporting of Meta-Analyses; STARD = Standards for Reporting of Diagnostic Accuracy; STROBE = Strengthening The Reporting Of Observational Studies In Epidemiology; MOOSE = Meta-Analyses of Observational Studies in Epidemiology. Adapted from the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals," section IV.A.1.b.¹

†All accessed June 8, 2007.

disagreements later. Even when the full list of coauthors is fairly clear, listing the authors alphabetically on early drafts with a note “final order to be determined” makes it clear that the order of authorship will depend on the level of input received.

The Acknowledgment section provides a way for authors to recognize the contributions of individuals who contributed to the paper but whose contribution did not merit authorship. Because readers may infer that those acknowledged endorse the data and conclusions of a paper, the Uniform Requirements state that all persons listed in this section must give written permission to be acknowledged.

CHALLENGES AND PROBLEM PRACTICES

The current climate for research funding and the promotion and tenure policies of most institutions create tremendous pressure on investigators, both senior and junior, to circumvent the now-accepted authorship requirements. This pressure may have several forms, as follows: (1) a perceived need to “pad” one’s curriculum vitae to help ensure a promotion; (2) fear of retribution from a senior faculty member or department head seeking to pad his or her own curriculum vitae; (3) implicit or explicit pressure from a private funder to “get the right answer” or risk losing further grant funding; or (4) the desire to add a high-profile author to a manuscript simply to add greater credibility to the study and hence enhance the likelihood of acceptance of a paper.

Claxton⁴ enumerates several categories of dubious or outright unethical authorship practices. These include coercion authorship, in which a person in a position of authority uses that position to compel another author to include him/her on a manuscript even though that person does not meet the accepted authorship criteria. Mutual support/admiration authorship occurs when two authors wishing to pad their bibliographies agree to place each others’ names on their respective papers even though each may have made little or no contribution to the other’s paper. Gift authorship occurs when an individual is listed as an author either solely as a gesture of respect (*eg*, for a mentor) or as an attempt to make a paper appear more credible than it is. Gift authors may be unaware that they have been named on the paper.

A fourth category, the ghostwriter, may follow one of several scenarios. In one, an organization or individual who has had a major influence on a paper may decline to be listed as an author to hide a potential conflict of interest. In the worst case, the employees of an organization do the work, write the paper, and reimburse an “independent” investigator

who is willing to be listed as the author. In a second scenario, an author may be hired to write all or part of a manuscript but is not listed as an author or acknowledged in the manuscript. As noted by Woolley,⁵ using a ghostwriter is distinct from using a medical writer or technical editor to improve the readability of a manuscript. Using a medical writer or technical editor who is noted in the Acknowledgment section can even be recommended, especially when the authors’ native language is not English.

Finally, Claxton⁴ refers to what he calls “duplicate production authorships”; that is, publishing essentially the same article in multiple journals, as book chapters, and so on. When done in an abusive manner, the sole purpose may be to pad one’s bibliography. There can be legitimate reasons for publishing highly related articles, however. For instance, many journals are now devoted to publishing reviews or shortened summaries of previously published work. So long as the work is not presented as previously unpublished work, and appropriate permissions are obtained to use (if necessary) the content of previously published work, such articles can be an effective way to provide greater dissemination of one’s work.

CONCLUSIONS AND RECOMMENDATIONS

Ultimately, the lead author remains responsible for assuring that coauthors satisfy their authorship requirements and for removing them from a paper if they do not comply. Making sure that coauthors are aware at the beginning of the process of their responsibilities as authors will help with this difficult situation.

TAKE HOME LESSON

In closing, Browner² offers the following useful checklist for lead authors:

1. Does everyone included as an author meet the requirements of authorship?
2. Has anyone who deserves to be an author been left out?
3. Have all authors reviewed and approved the final version of the manuscript?
4. Does the order of authorship correlate with the contributions made to the paper, with the possible exception of the last (senior) author?

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