

Passing the *Paternité* Test

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I recently gave a lecture to the faculty and house officers in my department on the topic of submitting a manuscript for publication. I covered how to choose a journal, the importance of following the instructions for authors, responsibilities of authorship, communications with the editor, misuse of figures and tables, linking cited references to Medline and PubMed, what happens at the journal office, and what reviewers look for during the peer-review process. When I entertained questions, 7 individuals raised their hands. It turned out that 6 of the 7 questions were about authorship criteria, and each question related to a specific circumstance that the questioner had encountered or was currently encountering.

Why did the fact that authorship issues challenged my colleagues come as no surprise? In my files I have a 1953 editorial, published in *Circulation Research*, on trends in authorship. In this editorial (1), Robert Alexander lamented the fact that scientific publications had “become afflicted with an increasing tendency towards multiple authorship of papers,” a problem that would “degrade authorship into a form of menial patronage.” In 2010, I ran across no fewer than 12 editorials on ethical issues associated with authorship, one of which (2) inspired the title for this article. One would expect that the rules of authorship would be understood 58 years after Alexander wrote his editorial, but many of the same problems still exist. Even for a seasoned author and journal editor, what should be black and white can start off as gray. So what is the younger author to do? Fortunately, guidelines are available to help researchers and authors deal with issues of who should be an author and when the threshold for authorship has been met. The goal of this article is to introduce you to current guidelines on authorship and how journals are applying them.

Defining Authorship

Helpful definitions of authorship can be found in guidelines written by international organizations such

as the World Association of Medical Editors (WAME)² (3), the Council of Science Editors (4), the Committee of Publication Ethics (5), and the International Committee of Medical Journal Editors (ICMJE) (6). I recommend that all researchers have a copy of these guidelines in their files because they represent the ethical standards of practice recommended by these 4 leading organizations. Most major biomedical journals now follow the authorship criteria developed by the ICMJE (6). The ICMJE defines an author as someone who has met all 3 of the following criteria:

1. Substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
2. Drafting the article or revising it critically for important intellectual content;
3. Final approval of the version to be published.

The *AMA Manual of Style* (7), which also highlights these ICMJE criteria, points out that the term “substantial contribution” can be open to interpretation. To help with understanding what constitutes a substantial contribution, the *Manual* suggests the following explanation: “A substantial contribution is an important intellectual contribution, without which the work, or an important part of the work, could not have been completed or the manuscript could not have written and submitted for publication.”

The ICMJE also states, “Acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship” (6). The WAME policy statements (3) also state, “Performing technical services, translating text, identifying patients for study, supplying materials, and providing funding or administrative oversight over facilities where the work was done are not, in themselves, sufficient for authorship.” On the surface, these statements might seem restrictive, because the major contributing role for a senior researcher or academic advisor might be in obtaining grant support (8). In reality, academic advisors should be making ongoing intellectual contributions by reviewing the work of students and junior researchers, suggesting new ideas, making at least some contribution to the writing of the paper, and

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² Nonstandard abbreviations WAME, World Association of Medical Editors; ICMJE, International Committee of Medical Journal Editors.

approving the final product that has their names on it; however, doing someone a service by loaning them space, offsetting part of their salary, giving them reagents, or proofreading their papers does not meet the qualifications for authorship.

Order of Authorship

The order in which authors' names are to be listed on a scientific paper should be decided after input by all of the authors. Ideally, this decision should be made at the outset of a study, but certainly by the time the first draft of the paper is being created. The initial order of names may shift as individual contributions or responsibilities change, and a new author may be added as new experiments and intellectual contributions arise. But in the end, the presence of any name on the final list of authors should be understood by all of the authors.

There are no rigid criteria governing the order in which authors should be listed. Generally, authors are listed in order of their overall contributions to the study, with the person contributing the most being listed as the first author. The first author may also be the individual taking responsibility for writing the first draft of the paper, or the person who serves as the guarantor for the study as a whole. The last author is often a senior author, graduate advisor, study leader, or primary grant recipient. In cases in which more than one individual has contributed equally, the order in which these individuals are listed can be determined alphabetically or by drawing lots. A footnote is then added to the paper stating that these authors contributed equally to the study.

Authorship No-No's: The 3 G's

Certain types of authorship are considered unethical and worthy of sanctions should they be detected. They include guest authorship, gift authorship, and ghost authorship. Guest and gift authorships (also called honorary authorships) are similar in that each represents the inclusion of an author who does not meet the criteria for authorship. A guest author is usually an expert in the field who has made no clear contribution but whose name is purposely added with the goal of improving the chance of the paper's acceptance. In gift authorship, an individual (e.g., a mentor) is added as a tribute or because of a position of authority (e.g., department chair), even though the person did not qualify for authorship. I liken gift authorship to what Bennett and Taylor (9) refer to as "pressured authorship." A study of guest/gift authorship in 6 medical journals (10) found that 19% of the published research articles (range among journals, 11%–25%) had evidence of honorary authors. More recently, *The Lancet* retracted

a research paper (11–13) for a study in which a department head used honorary authorship as a defense for the presence of his name on the paper, even though he had signed a statement confirming a role in the study.

Ghost authorship comes in 2 forms. The first form is the omission of the name of an individual who made substantial contributions to the study but was wrongfully denied authorship. The second and more common form is the failure to list as an author, or to acknowledge the contribution of, an individual (such as a paid writer) who is in a position to control or manipulate the content of the paper, sometimes to suit the wishes of the sponsor. It is important, however, to distinguish a ghost writer from a professional medical writer who helps authors present a clear and cohesive message in the paper, provides a valuable service, follows a code of ethics, and whose role is acknowledged in the final publication (14, 15).

Multiauthor Papers and Contributorship

Nearly 15 years ago, Richard Smith, then editor of the *British Medical Journal*, argued that the concept of authorship was so broken that it should be scrapped and replaced by a descriptive system that would identify contributors rather than authors (16). Shortly afterward, the *British Medical Journal* began to move away from an emphasis on authorship by publishing lists of contributors and guarantors for papers describing original research (17). Since that time, guidelines and criteria for authorship have continued to be updated and published (3–6), but history continues to illustrate that many scientists seem either to be unacquainted with or to simply disregard these ethical standards of practice (8). This assertion is evidenced by the continuing problems with excessive numbers of authors on papers, with many papers still including guest or gift authors. In an attempt to curtail these practices, more journals are adopting the concept of "contributorship" as a way to provide greater accountability and transparency about the actual contributions made by those claiming to meet the criteria for authorship. In addition, more journals include a "contributions" section at the end of every paper, where the detailed contributions of every author are listed and available for scrutiny. Some journals ask editorial staff to flag multiauthor papers that exceed a designated number of authors. Such flagging of multiauthor articles allows editors to ask for a written explanation of the roles of all proposed authors and how they meet the ICMJE criteria. Editors may even request that names be removed in cases in which questionable authorship reflects negatively on a submitted paper. Thus, even if the journal you have selected does not require disclosure of author contributions, you should be prepared to document

the specific contributions that each author, including yourself, made to the study and in preparing the submitted paper.

In addition to providing for public disclosure of the actual contributions of each author, the concept of contributorship may serve 2 other purposes. First, an internal discussion of the contributions of all individuals involved in a study may help a group of collaborators allocate credit more equitably among those involved in the study (18). Second, the creation of a contributorship category or designation may provide a mechanism for publicly giving credit to individuals who contributed to the study in an important way but fell just short of meeting the ICMJE authorship criteria. In fact, the report from the Task Force on Authorship of the Council of Science Editors (8) discusses the merits of a “trichotomous” system (authors, investigators, acknowledgments) in which these types of individuals would be recognized in a separate heading or byline, such as “Participating Investigators.” One might argue that such a system would create a challenge for academic centers that have long used authorship as the sole criterion for publication credit. But as Smith stated, “Credit should depend more on thought and less on number crunching” (16).

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Final Thoughts

Although one English equivalent of the French word *paternité* is “paternity,” the word also means “authorship.” Being or claiming to be a father carries responsibilities, and so does being or claiming to be an author.

The process of deciding authorship can put one in an awkward position. Fortunately, there are guidelines available from respected organizations that can help in sorting out problems and determining who has passed the *paternité* test.

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