Should the Criteria for Authorship of Scientific Papers Be Changed?

Yes: It Is Time to Abandon Authorship

Authorship matters greatly. But it’s time to abandon the concept in science. Why?

Academic life revolves around publication. Those who publish flourish; those who don’t, wither. Even professional success may depend on publication: In some medical specialties in Britain you don’t get a job unless you have published. And publication implies authorship. So authorship can bring glory or “fame and the love of beautiful women,” said Freud. But authorship also, stern editors remind you, brings responsibility. If a paper is wrong, fraudulent, or libelous, then the authors must take responsibility.

Authorship is thus deadly serious, but what is it? In the case of 19th-century novels, authorship is a simple concept. A man with a long beard goes into a room and emerges 6 months later with 200,000 words, every one of which he has pulled from his head. Modern science is different. A team of people with different skills, disciplines, and levels of seniority produce a paper. Somebody dreamed up the idea shortly before returning from Mexico and departing for Istanbul, somebody spends weeks working on a painstaking laboratory procedure, somebody else writes the manuscript. All of them were needed to produce the paper. Who is an author? All of them; none of them. Clearly somebody had to decide, and so the International Committee of Medical Journal Editors (Vancouver Group) brought forward its definition of authorship. The definition, which you know, is demanding. If we applied it literally, then many papers might have no authors at all, because researchers divide up tasks that the Vancouver Group insist they all do.

The Vancouver Group definition, which seems to be the only definition in town, doesn’t work in the real world. Many people who do not meet the definition (or who have done nothing) appear as authors on papers (usually because of their seniority and clout), while others who have worked long and hard on studies do not appear as authors, making them resentful. Studies in both the United States and Britain show that many people who appear as authors do not meet the Vancouver Group criteria (1, 2). We have fewer data on who ought to appear but doesn’t, but a survey of 66 medical researchers from Newcastle in Britain showed that half said that they had been excluded from authorship of a paper when they thought they should have been included (3). Those data also showed that half had not heard about the Vancouver Group definition, and only a fifth knew what it said. When told the definition, two-thirds disagreed with it: Most thought it too restrictive.

The Vancouver Group definition is not working and is not accepted by researchers. How should we respond? One option would be to loosen up the criteria. Let anybody who wants to be an author be one. The problem with this option is that it simultaneously undermines the value of authorship and dilutes responsibility.

A 2nd option is to try and enforce the definition more vigorously. Thus the BMJ (British Medical Journal) asks the corresponding author to sign a form to say that all authors meet the Vancouver Group criteria and that there is nobody who has been excluded from authorship who meets the definition. We’ve discovered that almost everybody is happy to sign even though people who are included don’t meet the definitions and there are people excluded who do. Perhaps we should be tougher, perhaps by asking all authors to sign the form, but this option fails to acknowledge that many researchers simply don’t accept the Vancouver Group criteria. How far can editors go as policemen? Do they want to be policemen? I don’t.

A 3rd option would be to tweak the Vancouver Group criteria—for instance, by allowing statisticians who analyze the data to be included. This change doesn’t, however, address the fundamental problems: The powerful who have done little will still be included, and laborers in the vineyard, apart from the statisticians, will still be excluded.

A much more radical option—suggested several times, but most recently by Drummond Rennie, deputy editor (West) of JAMA (4)—is to abandon the idea of authorship and go for a descriptive system. Authors or editors would not have to decide who was a sheep and who a goat. Instead, authors would simply describe who did what; Sally raised the grant; Sue first conceived the trial, wrote the protocol, and read the final draft of the paper; Joe collected the specimens; Charlie analyzed the data and drew the figures; Bill allowed his patients to be used in the trial; and Alice drafted the paper. Readers would know who did what and could make their own judgments on relative importance. But, argues Rennie, we would also need a guarantor: somebody who would be responsible for the whole paper. The guarantor might be the principal investigator or it might, I believe, be the head of the laboratory or institution. I am the guarantor of the BMJ, but I have not read every word it contains before it is published.

The more that I have reflected on this option, the more convinced I have become that it’s the right way to go. Its great advantage is that it doesn’t necessitate judgments—inevitably subjective—on who is OK and who isn’t. All the other systems demand such judgments, and inevitably the powerful prosper and the weak are exploited.

But there are big snags with this proposal. It demands a radical change in thinking: It is truly a paradigm shift. It would force people who develop citation measures to change fundamentally—but that, I suggest, would be no bad thing. Next, because the powerful will potentially lose out—by being exposed as having done doing nothing or by having to share the glory—they will oppose it.

The Vancouver Group at its last meeting could not agree on how to solve the problem of authorship. Some supported the radical solution; others were strongly against it. We could agree, however, that we needed a debate. Before we make another change we need the views of authors, researchers, read-
No: There Is a Need for High Standards for Authorship

High standards of authorship are important for both those who do research and those who use the results of research in any way. For researchers, authorship is a very important—perhaps the most important—"coin of the realm." With few exceptions, authorship is necessary for appointments, promotions, research funds, and recognition, no matter where or in what area of research the person works. Without high standards for authorship, all these rewards are devalued.

For those who use research, high standards for authorship are necessary to ensure the validity and integrity of what is published. Validity and integrity can be assured only by those who conceived the research, did the work, interpreted the results, and wrote up and explained the findings. In short, the author should have made intellectual contributions to the work. He or she should also be able and willing to take public responsibility for the work. Several recent examples of research that proved to be fraudulent have involved persons listed as authors who did not participate sufficiently to know that the work either had not been done or was done improperly. Requiring authors to accept public responsibility for their work will not prevent all fraud, but acceptance of this standard for authorship heightens sensitivity and awareness of the possibility of ethical transgressions.

These are high standards, and not everyone involved in a research project will meet them. What constitutes intellectual contributions is not always clear, and reasonable people can disagree about the extent of various contributions in specific instances. Nevertheless, by singling out intellectual functions—conceiving, planning, reasoning, interpreting, explaining—as the essence of the matter, a number of nonintellectual activities are, by implication, inadequate to justify authorship. Persons who make space or other resources available for research, or who have loose and nominal supervision of the researchers, will not meet this standard. Nor will those whose role is solely to collect data, make measurements, or provide clinical care, without any contribution to planning, analysis, or interpretation. Nor will those whose only contribution is to write the manuscript. These roles and others may be important, but they do not meet the essential standard of intellectual involvement.

The 2nd part of authorship is taking public responsibility for the work, specifically to vouch for and guarantee its integrity. This concept of public responsibility is based on the fundamental premise that science can advance only if research is honestly reported. Who but those whose involvement included the essentials described here can assume this responsibility? To do this, the author must have a reasonable degree of familiarity with all aspects of the work. There is nothing complicated about this standard for authorship. The work may turn out to be inaccurate; later work can always invalidate what seems correct today. It is essential that observations be made and conclusions be arrived at and reported honestly. The surest way to accomplish this is for all who would be authors to have sufficient familiarity with the work to affirm publicly that they are willing to take responsibility for the integrity of the work and the conclusions.

We think these standards for authorship are generally accepted. Recently, however, questions have been raised about their relevance and applicability to modern research, and arguments for lower, or at least different, standards have been advanced (1). These arguments are based on the notion that research is increasingly complex and requires many different types of expertise and many people, and that those who have this expertise, participate in any part of the research, or supply the necessary resources deserve the recognition that comes with authorship. The evidence that some people are being excluded from authorship—and by inference would not be if the standards were lower (or different)—is based on surveys (2) ("Are there papers of which you should have been a coauthor and were not?") or the proposition that no one will contribute to a research project if he cannot be an author. Deserving persons may have been excluded in some cases. No doubt the way authorship is agreed on must vary a great deal among research groups; all too often it is agreed on at the end rather than the beginning of the research. Some people may refuse their assistance if they cannot be authors. However, we believe

References

1. Shapiro DW, Wenger NS, Shapiro MF. The contributions of authors to multiauthored biomedical research papers. JAMA 1994;271:438-42.
that cooperation in research should not require a quid pro quo and that authorship should involve something more than recognition or reward for services rendered.

Multiple authorship may be an inevitable consequence of the increasing breadth and complexity of research, reflecting the need for multiple types of expertise, for collaborative association, and for multi-institutional arrangements. Under such conditions, the ability of any one person to take responsibility for the whole becomes problematic, or so the argument goes. Taking responsibility doesn't necessarily mean one knows every detail of the research, but it does require enough familiarity with the totality of the work that one can comfortably guarantee its integrity.

We recognize the existence of arguments for changing the standards for authorship. In research may sometimes be more complex than in the past, and it may possibly have outgrown the capacity of even renaissance investigators to conceptualize, let alone conduct, it. Although we are now editors, we also have some experience as investigators, and we understand the problems associated with the conduct of research and reaching agreement about authorship of particular papers. However, as editors, we are more concerned about the responsibilities of authorship than about the rewards it might confer. Editors and authors, although they may seem to have different perspectives on this matter, actually share a common goal—maintenance of the highest possible standards so that authorship will stand for both important accomplishment and the integrity of the work. Editors can ask questions about the roles of authors and make general rules about how many and what kind of authors they will permit. In the final analysis, however, the author's judgment as to who is qualified has to be respected. Authors, every bit as much as editors, should want those qualifications to be unyieldingly high. ☞

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References

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