

FRAILITY IN PUBLICATION: ORDER OF AUTHORSHIP

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National professional associations undertake to initiate prospective and retrospective clinical studies to accomplish their scientific task. There is increasing number of retrospective studies with the concomitant increase in demand of academic and professional advancement of junior faculties, or trainee who is in most need of the publication. However, there is no universally or nationally accepted authorship order guideline; therefore, we aimed to summarize the current requirements of authorship order for manuscript submission to a biomedical journal.

Frailty in publication: order of authorship

Despite the academic physicians' obligation to render ample clinical activities in service to the institution, their rewards still depend on productivity measured chiefly by their publications and research funding. The fact is, issues of authorship precede the development of writing itself, and actually comprise a fundamental cause for its genesis (1). Many organizations and institutes are trying to create explicit definitions, but there are no universally accepted rules or legislations yet.

The most cited definition of authorship is defined simply by International Committee of Medical Journal Editors [ICMJE] (2)

- Authorship credit should be based on
 - 1) Substantial intellectual 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.
- Authors should meet conditions 1, 2, and 3.
- Persons who fulfill all of the criteria should be an author.
- Persons who contribute to the manuscript project only through laboratory or departmental sponsorship, financial assistance, technical support, counsel, data collection, data analyses, or provision of access to patient data would *not* be named as authors. (2,3)

Although more than 500 biomedical journals adopt these authorship definitions, controversial and disagreement do exist. Unless all authors share responsibility for the scientific integrity of the paper as a principle of research, it would take much longer time to bring into effect such policy. Sharing responsibility includes the probability of being held accountable for any subsequent charges or sanctions of scientific misconduct (3). These points are not mentioned

as strongly as the so called "credits" of authorship which holds the priority in most of the discussions about publication unfortunately.

Order of authorship

Most of the prestigious and trusted institutions and organizations reveal their own guidelines for authorship which are highly suggestible "recommendations" actually. They emphasize journal instructions for authorship should precede the guidelines (2-4)

Order of authorship varies across disciplines, research groups, and countries. Examples of authorship policies include descending order of contribution, placing the person who took the lead in writing the manuscript or doing the research first and the most experienced contributor last, and alphabetical or random order. While the significance of a particular order may be understood in a given setting, order of authorship has no generally agreed upon meaning (4). It is a traditional agreement that the first author is the most "important" one and should ideally be the intellectual progenitor of the work being reported. However, in many institutions the first author is generally the junior author (e.g. junior academic, or trainee) who is in most "need" of the publication for academic or professional advancement (5). The senior academic or supervisor takes up the position as the second author or the last author, latter as considered more prestigious by some. Especially in institutionalized organizations running randomized clinical trials (e.g. *National Surgical Adjuvant Breast and Bowel Project, NSABP*), there are explicit terms leaving no doubt behind. The intellectual progenitor who creates and designs the study is defined as the protocol chair and personally writes the study protocol in collaboration with the statistician. Protocol chair therefore is the first author and responsible from the study as a whole from initiation to the publication.

A research study has two fundamental concepts: cognitive results of the research effort and work and labor (1). The authorship order in this milieu has no distinct borders, but it could, or maybe should, be described literally to eliminate doubts about the order. Another recommendation is the order of coauthors should be a joint decision with honest and diplomatic negotiations between collaborators, before any substantial research or writing is begun (4). The responsibility of this order is given to all authors in conclusion (2,4). On the other hand;

- Growth of specialization inevitably led to collaboration within disciplines. Consequently, all authors do not have the same level and type of expertise and experience.
- Primary or senior author, usually the primary investigator as well, is the intellectual progenitor thus prime mover of the study. By definition, primary author is responsible for the protocol design, applications, collaborations thus the organization scheme of the entire study.
- Journal editors are naturally reluctant to deal with authorship issues. Although they are updating and extending their authorship requirements, they are in agreement for the necessity of a corresponding author who also takes the responsibility for the work as a whole.

Primary author description is also used alternatively for corresponding author, guarantor, and to a lesser extent equivalent to senior author. Some guidelines imply senior author should be established by all the authors at the outset of a project (2,6) which is almost inapplicable since the following concepts and issues inherently mandate an index responsible author as the fulcrum of the study:

- Initiation, designing the study and creating an organization scheme of an individual research project
- Primary responsibility for the work as a whole, from inception to published article
- Finding grant support
- Re-assurance that all authors meet basic standards for authorship
- Preparation of a concise, written description of their contributions to the work and how order of authorship was decided approved by all authors (1,2)

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Primary author is the conceptual counterpart of these facts regardless of the type of the study. In regard to order of coauthors, contributions could be explained extensively in a "contributorship model" that aims to describe what each author did exactly during the course of the study (7). The descriptions are supposed to be based on a common taxonomy (e.g. study conception and design, data acquisition, analysis and interpretation and critical revision). Some journals (e.g. JAMA, Nature, Academic Medicine, JACS) require or "encourage" this model while the vast majority still do not. There is no doubt such revelation not only would make it more transparent for promotion committees, granting agencies, readers, and others who seek to understand how individual authors have contributed to the work but also rationale the author order ultimately. Thus authorship order is based on the "substantial" contributions, regardless of the clarification method. Furthermore, university promotion committees, funding agencies, and professional associations would all need to agree that they were of value (8). What credit would be attached to being a "clinical investigator", "contributing author", or "contributor" or will the information on middle-level contributions be included on CVs? (8)

Conclusion

The authorship has two stakeholders or sides simply. Unless quantity dominating promotion process rather than quality improves, no legislation or law could prevent the exertion for being listed in the byline and the order of authorship will continue to be an obstacle. Local authorized organizations such universities, educational councils, and national professional associations should initiate a task force and create an agreement on the order of authorship. Meanwhile, compulsory requirement of contributorship explanation by journals would definitely help to clarify ambiguity and dissipate the disagreements.

Key words: order of authorship, publication, guideline

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