

# Authorship Concerns and Who Truly Owns a Research Idea?

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Researchers often face dilemmas about authorship. When the researchers are graduate students, fellows, or junior faculty, the dilemmas might involve discussions about fair criteria for more senior faculty to be acknowledged as key contributors or authors on manuscripts. This “Ethics Rounds” presents a case in which a fellow faced such a dilemma. We review current journal guidelines for authorship and some ethical considerations that should help make this process more streamlined.

We sought comments from fellows, faculty, and a journal editor. The discussion highlights ways in which decisions can either unfairly withhold authorship or inappropriately include someone as an author who did not meet criteria for authorship.

## THE CASE

John, a research fellow in the Department of Pediatrics, was working on developing a proposal. He approached his mentor, Dr Smith, to brainstorm research ideas. While discussing a potential idea with him, Dr Smith mentioned that she had briefly talked about this topic with a clinical attending, Dr Wang, and that she and Dr Wang agreed that it was an interesting research area. Dr Wang had never followed up on the conversation. Dr Smith encouraged John to develop the idea for his own project. John subsequently developed a well-formulated research proposal, including an original hypothesis, aims, methods, and an analysis plan.

One weekend, while attending a symposium where Dr Wang was present, John told him about the research project. Dr Wang became visibly upset and told John that this was his research idea and that he should be part of the research team. Dr Wang insisted on being the lead investigator.

Dr Wang is primarily a clinician and does not have a record of successful original research or research mentorship. However, the Department of Pediatrics has a long-standing tradition of including clinicians on manuscripts published by the research fellows for studies involving patients under the care of those physicians. After some discussion, Dr Wang conceded that he should not be the lead investigator but insisted that, because the project was his idea, he should be an author, and perhaps the lead author, on any articles that came out of the project.

John discussed what Dr Wang had said with his mentor, Dr Smith. She clarified that she and Dr Wang had not discussed any aspect of the original idea in any depth beyond saying “this would be an interesting research area,” with no follow-up on their conversation. John carried out the project and sent periodic updates to Dr Wang. Dr Wang usually replied with a 1- or 2-sentence e-mail with a few suggestions about how to analyze the data. John is now preparing a manuscript for publication. Should Dr Wang be the lead author? Or a coauthor?

## SANA SYED AND DUC TRAN, GRADUATE STUDENTS AND CLINICAL AND RESEARCH FELLOWS, COMMENT:

This case highlights 2 common challenging issues: intellectual

## abstract



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[www.pediatrics.org/cgi/doi/10.1542/peds.2015-1421](http://www.pediatrics.org/cgi/doi/10.1542/peds.2015-1421)

DOI: 10.1542/peds.2015-1421

Accepted for publication May 4, 2015

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** Supported by the National Center for Advancing Translational Sciences of the National Institutes of Health under Award Number UL1TR000454. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Funded by the National Institutes of Health (NIH).

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

property (IP) and authorship. The term *IP* is recently developed and did not enter the literature until the 19th century.<sup>1</sup> IP alludes to the “rights to control intangible objects that are products of human intellect.”<sup>2</sup> Research data are a recognized form of IP, but IP law has become increasingly complex. IP rights allow creators or owners of patents, trademarks, or copyrighted works to benefit from their own work or investment in a creation.<sup>3</sup> These rights are outlined in the United Nations Universal Declaration of Human Rights, which states, “Everyone has the right to the protection of . . . any scientific, literary or artistic production of which he/she is the author.”<sup>4</sup> IP gives impetus to authors and leaders of thought with financial motivation to continue innovation and share their discoveries. Without a rigorous system to protect IP, innovators will be reticent to share discoveries. This will lead to an environment of secrecy. When a patent is granted, its application becomes publicly accessible, thus creating the opportunity for other researchers to learn while granting the originator of the patent economic protection.<sup>3</sup> In the context of this case, discussions of areas for potential research between clinicians and researchers such as Drs Wang and Smith are crucial to the process of ensuring a creative environment and fostering critical thinking. This would be possible only under the mutual understanding that credit be given where it is due.

In this environment, it is important to determine who has an ethically defensible right to claim this property. This is where authorship enters the discussion. Some of the principal thoughts behind questions of authorship are similar to those that undergird the system of IP rights. The International Committee of Medical Journal Editors (ICMJE) encourages editors to implement clear author policies.<sup>5</sup> The ICMJE defines

authorship as (i) substantial contribution to the conception and design, or acquisition of data, or analysis and interpretation of data; (ii) drafting the article or revising it critically for important intellectual content; and (iii) final approval of the version to be published. An author meets 3 criteria: he or she should have made significant contributions to the research, he or she should be prepared to publicly attest to the quality of the work, and he or she should be able to address any queries raised about the work.<sup>6</sup> In the context of IP, this translates as the owner being someone who can describe the research idea for which ownership is being sought and can explain what exactly is being hypothesized and being tested and can show its application in terms of use and innovation. Accountability helps delineate primary ownership but does not account for contributing collaborators.

In deciding about contributors, 2 approaches<sup>6</sup> can be used. The libertarian perspective credits the proportion of contribution invested, whereas the utilitarian viewpoint allocates reward based on what promotes growth and development, that is, rewards those with the first complete product. Although Dr Wang may have brought up an interesting area of research, the real ownership of the idea belongs to John and Dr Smith, who deliberated the hypothesis, the project’s specific aims, methodology details such as subject inclusion and exclusion criteria, and the statistical approach. They were the investigators who planned and conducted the project. Depending on the contributions of Dr Wang, he could be considered a contributor or a coauthor on the final manuscript. However, it would be incorrect to state that this was his idea.

In the case of clinical studies, simply being the primary care provider of a research study subject does not meet criteria for authorship. Although

Dr Wang neither owns the idea nor meets authorship criteria, is it ethically and intellectually fair to suggest that Dr Wang receive acknowledgment and not authorship for his involvement? As outlined by the *New England Journal of Medicine*, those who contributed intellectually but do not merit authorship may be named and have their contributions described.<sup>5</sup> After all, Dr Wang did provide a valuable contribution to the development of the project and deserves to be acknowledged in any manuscript that comes to fruition.

Finally, the last dimension of this case that merits discussion is what can be owned in terms of IP. Was merely mentioning an idea enough to claim credit, or did Dr Wang need significant application of his intellect to pursue an innovative research question? Many clinician–scientists formulate ideas that have the potential for significant medical and financial benefits if developed and applied to the advancement of health.<sup>7</sup> However, Dr Wang did not advance his idea.

Although he is an important part of an intellectually stimulating academic environment, Dr Wang was wrong in assuming that he deserved lead authorship for a proposed project. However, John should have also handled the situation differently. Ideally, he should have had an open discussion with Dr Wang, involved him in the project, and attributed credit proportional to his intellectual input.

Lastly, in answering the question of whether it was ethically right to have a “tradition” of including clinicians on articles published by research fellows, we should refer to the authorship criteria set forth by the ICMJE.<sup>5</sup> It is the responsibility of departmental leadership to establish an atmosphere encouraging adherence to ethical principles and to make the rules about authorship clear so that there is no room for misinterpretation.

**ALEX KEMPER, DEPUTY EDITOR OF PEDIATRICS, COMMENTS:**

Unfortunately, authorship disputes such as the one described in this case are common. Although it is not the responsibility of editors to negotiate authorship or authorship order, we do pay close attention to who is listed once manuscripts are submitted. Our journal, along with many others, follows the ICMJE criteria for authorship: "substantial contributions to the conception or design of the work; or acquisition, analysis, or interpretation of data for the work; AND drafting the work or revising it critically for important intellectual content; AND final approval of the version to be published; AND agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved."<sup>8</sup> We ask for a brief description of contributorship so that we can evaluate whether each author has met the criteria. Although we do not routinely investigate claims of authorship, we are sometimes concerned about whether an individual fulfilled the authorship criteria. In those cases, we follow the algorithms developed by the Committee on Publication Ethics. We are happy to list individuals who did not meet authorship criteria but who made substantial contributions to a project in the manuscript's Acknowledgments section.

The situation faced by John, Dr Smith, and Dr Wang could have been prevented by better communication. Dr Smith should have counseled John to establish the authorship group early in the project. In my experience, engaging front-line clinicians early in the development of a research project significantly improves the final product. We are told that Dr Wang never followed up with Dr Smith to pursue the research opportunity. However, it sounds as if this was

a passive invitation. Dr Wang is not a researcher, and I suspect that Dr Wang did not know what was expected of him at that juncture.

Dr Wang wants to be an author because the project reflects his idea and because of the institution's tradition of including clinicians on manuscripts for providing research subjects. Coming up with a research idea does not qualify an individual for authorship. Ideas come up all the time in clinical settings, and it takes a significant amount of work to translate ideas into meaningful hypotheses and related research strategies and then carry out all stages of the work. Although providing subjects for clinical studies is critical for the success of research studies, that also does not alone merit authorship. This work would merit an acknowledgment that explicitly describes these contributions.

However, I do believe that there was an opportunity for Dr Wang to become an author. Dr Wang did participate in the development of the initial research idea and did provide brief suggestions about how to analyze the data. It is hard to tell whether these were substantive contributions, but given that the manuscript is now being prepared, I suspect there is an opportunity to reengage Dr Wang in issues of analysis and interpretation and certainly in the process of drafting the manuscript. The other 2 authorship criteria, approving the manuscript and agreeing to be accountable, could be easily met if Dr Wang were able to participate more in analysis, interpretation, and manuscript development. John will have to be specific with Dr Wang about the expectations for authorship. He should work closely with Dr Smith to develop explicit but realistic expectations and a timeline for completion of these activities and a sensitive way to present this information. Sharing the authorship

criteria from the targeted journal may facilitate the conversation.

In terms of authorship order, if John continues to conduct most of the other research activities and if he writes the first draft of the manuscript, then he should be first author. In terms of the order of the rest of the authors, it is unclear from the case description whether Dr Smith has fulfilled authorship criteria. Mentorship alone does not qualify for authorship. If Dr Smith has been substantially involved, then John will have to negotiate the remaining authorship order. John might benefit from mentorship from someone not involved in this particular research project.

Based on my research experience, I suspect that Dr Wang will be engaged and meet the authorship criteria and that John will be surprised at the value that Dr Wang adds to his work. This collaboration could lead to important changes in how researchers and clinicians interact within the institution in future research projects, which will help develop higher-quality work, better partnerships, and greater overall satisfaction.

**JOSEPH W. ST GEME III, PROFESSOR AND CHAIRMAN OF PEDIATRICS, UNIVERSITY OF PENNSYLVANIA AND THE CHILDREN'S HOSPITAL OF PHILADELPHIA, COMMENTS:**

This case raises a number of interesting and important issues about authorship of journal articles. Although guidelines for authorship have been established by journals and are very helpful in adjudicating individual situations, ambiguity remains. Authorship should be guided by substantial contributions to the conception, design, and execution of the work included in an article, by contributions to the writing of the article, and by acceptance of responsibility for all content in the article. Many journals now have very clear contributorship policies and

require information about the contributions of each author, in some cases publishing this information in the article.

Authorship of an article confers credit and has important implications from an academic perspective. Indeed, journal article publications are the coin of the realm in academic medicine and are a requirement for advancement on the academic ladder. In addition, authorship is important from an IP perspective, depending on the nature of the publication and whether the work described has intellectual property ramifications. Authorship also has social value in the context of the publication itself, which communicates new knowledge to the medical and scientific communities and thereby allows advances to be extended to others beyond the original investigators and the institution of origin.

In my experience at several different institutions, there have not been departmental policies per se related to authorship. In light of the general journal guidelines for authorship, key issues that require attention in the academic setting include who should be the first author, who should be the last author, when there should be multiple first authors, when a mentor should be included on an article, when a mentor should relinquish authorship, and what constitutes a substantial contribution to conception, design, and execution of a body of work.

Generally, the first author should be the person who designed and executed the majority of the work. In addition, the first author should be the person who served as the primary writer of the article and should be the person responsible for the integrity of the work as a whole. In some cases, 2 or 3 people have made similar critical contributions to the body of work included in an article. Provided that all these individuals play a prominent role in the writing of the article, they may be designated in the masthead of

the article or as a footnote on the first page of the article as all making similar contributions to the work, in recognition that only 1 can be listed first.

In most cases, the last author is the so-called senior author, the person serving as the mentor and advisor for the first author, who is responsible for overseeing and guiding the work described in the article. Often the senior author is the source of the original idea that motivated the work in the article, typically with significant input from the first author and often other authors. The senior author is often listed as the corresponding author, indicating that he or she shares responsibility for the integrity of the work as a whole with the first author.

My personal feeling is that mentors should make an extra effort to provide authorship opportunities for their trainees, considering all contributions to the work included in an article to be substantial. In addition, as trainees transition to independence as investigators and begin to develop their own research programs as junior faculty members, mentors should minimize their own inclusion as authors, facilitating the accurate perception that the trainee is driving the work. If a trainee is uncertain about authorship, he or she should seek input from a faculty advisor. If a junior faculty member is concerned about authorship issues, he or she should consult an impartial and objective senior faculty member, ideally a faculty member with no connection to the work in question.

Considering the guidelines for authorship, it is difficult to justify authorship for a clinical attending whose patients are included in a study but who does not participate in the conception of the study, the execution of the study, or the writing of the article. In this circumstance, the logical approach is to acknowledge the contribution of the clinical

attending in the Acknowledgments section of the article, a section that should be used liberally to recognize the many contributors to an ultimate publication. However, it is important to encourage clinical faculty to participate in clinical research, capitalizing on their presence in the academic environment and allowing them to share their experience in caring for patients, observing the clinical manifestations of disease, and appreciating the key questions that must be addressed to advance patient care and patient outcomes. Clinical faculty can make the necessary contributions for authorship by generating the ideas that stimulate a study, recruiting patients for the study, interpreting data, and participating in reviewing and refining the manuscript.

The case involving John, Dr Wang, and Dr Smith highlights the importance of communication about authorship between a trainee and his or her advisor and between colleagues and collaborators. In particular, during discussions of potential research, it is important for participants to be open about plans for follow-up and implementation. Furthermore, after these discussions, it is important for participants in the discussion to continue to share progress and the evolution of ideas. It is especially important for investigators who are pursuing overlapping work to discuss authorship for joint publications, ideally before the work begins or early on as results are generated. Open and ongoing communication can often prevent conflict and misunderstanding and ensure appropriate credit.

**JOHN D. LANTOS, SECTION EDITOR OF PEDIATRICS ETHICS ROUNDS, COMMENTS:**

The ethics of authorship is important, contentious, and, as a result, full of ambiguity. Like many other areas of ethics (think of research ethics, or

clinical approaches to disorders of sexual development, or every-other-night call schedules), times have changed. Not long ago, it was common to include a senior researcher or a clinician who helped to recruit patients as an author, even though this person had not made meaningful contributions to a research project or the resulting manuscript. Not anymore. Today, the criteria for authorship are well defined. However, that does not mean that they are well recognized or enforced. Students, trainees, and junior faculty can get caught in the crossfire. This is an ethical dilemma for the trainees, but, more importantly, it is an ethical failure by departmental leaders. The criteria for authorship must be clear, and the enforcement of those criteria must come from the top. In this case, Dr Smith had the responsibility to mediate the disagreement between John and Dr Wang. If Dr Smith could not resolve the conflict, she should have gone to her department chair. Disagreements about authorship are both ethical and political. Without administrative leadership, they will lead to an unethical climate for research that will ultimately be detrimental to

everyone involved and to the department.

#### OUTCOME OF THE CASE

John and Dr Smith proceeded with implementing the study, collecting and analyzing the data, and drafting an initial manuscript for publication. Ultimately, Dr Wang, the clinical attending, was sent a draft of the manuscript. He provided valuable insight and feedback, which led to his inclusion as the fourth author on the final manuscript. As a result of this discussion, the department has plans to incorporate an annual session during the educational noon conferences on authorship guidelines and how to ethically determine authorship criteria for research manuscripts.

#### ACKNOWLEDGMENTS

Drs Syed and Tran thank their ethics course teachers, J Banja and A Eisen for their input.

#### ABBREVIATIONS

ICMJE: International Committee of Medical Journal Editors  
IP: intellectual property

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*Pediatrics* 2015;136;969

DOI: 10.1542/peds.2015-1421 originally published online October 12, 2015;

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The online version of this article, along with updated information and services, is located on the World Wide Web at:

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