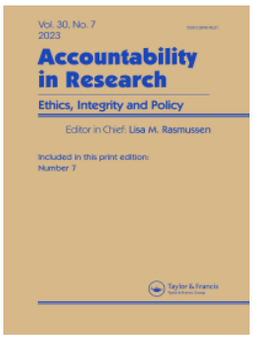

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On the potential value conflict between scientific knowledge production and fair recognition of authorship

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ABSTRACT

The value of scientific knowledge and fairness in distribution of academic credit are core values in research publication. However, it is little discussed in the literature that these values may come into conflict, particularly in interdisciplinary research. The point of this paper is to acknowledge and describe the conflict and discuss potential solutions. We use collaborations between pre-clinical (laboratory) researchers and clinicians at hospitals as an exemplifying case. We conclude that, without changing the preconditions for the value conflict, there is no general solution involving systematically prioritizing one value over the other. However, a potential way out of the conflict would be a general shift from authorship to contributorship regarding evaluation of contributions, but required routines are presently not in place with most journals.

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Introduction

A common assumption in medicine and biomedical research ethics is that scientific knowledge is valuable and that there is an imperative to do research (Callahan 2003; Wayne and Glass 2010). Another widely shared assumption is that only those who have contributed sufficiently to the work should be credited with authorship (ICMJE 2025). The correct handling of academic authorship is widely recognized to be of ethical importance, particularly for its relevance to fairness in the distribution of academic credit among researchers, but also to ensure transparency, correct handling of the scientific record, and the proper allocation of accountability for the work (ICMJE 2025; Wager 2009). It is commonly assumed that all these requirements must be fulfilled for the research practice to be ethically justified. However, what is rarely discussed is the potential conflict between these values and what to do in situations where they do come into conflict, i.e., when requirements of fairness in authorship attribution stand in the way of gaining new scientific knowledge.

Such conflicts exist in medicine. For instance, in collaborations between pre-clinical (laboratory) researchers and clinicians at hospitals where the initiative comes from the pre-clinicians, the contribution of clinicians may at times merely or mainly consist in providing data, which is insufficient to qualify as coauthor according to established authorship guidelines (see next section; ICMJE 2025). At the same time, their contribution is often both practically necessary for the study and time consuming. If they are not offered what they perceive to be worthwhile recognition for their work, they may opt out from the collaboration, which might put a stop to the entire research project. If they are instead invited as coauthors on the manuscripts, even if they do not fulfill established authorship criteria, they may agree to participate, and the research gets done.

This value conflict is by no means unique to medical research. It has also been identified in discussions of citizen science – covering a broad palette of research areas, such as biology, ecology, astronomy, and math – where citizens with a special interest may be of great help for research, for instance, by taking inventories or carrying out measurements in their local environment. Such contributions are at times practically necessary for the research projects to be possible to carry out, and it has been suggested that "citizen scientists" may

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deserve authorship for their contributions, also when they lack a deeper understanding of the field (Resnik 2019; Resnik, Elliott, and Miller 2015; Sandin et al. 2024).

In what follows, we take the authorship criteria of the International Committee of Medical Journal Editors (ICMJE) and the sketched example of research collaboration between preclinical researchers and clinicians as the focal point for our discussion of the tension between fairness expectations on authorship allocation on the one hand and the value of getting research done and scientific knowledge on the other. From our analysis we conclude that, without changing the preconditions for the value conflict, there is no general solution involving systematically prioritizing one value over the other. However, a potential way out of the conflict would be a general shift from authorship to contributorship regarding evaluation of contributions. Thus, recognizing this type of conflict provides yet another reason for endorsing contributorship over traditional authorship (Godskesen, Helgesson, and Eriksson 2025; Vasilevsky et al. 2021).

Our argument is structured as follows. First, we introduce the ICMJE authorship criteria, as these will serve as our point of departure. We then discuss a few possible explanations for deviations from good publication practice as well as the conflicting values at stake. We then look at possible ways out of this conflict, suggesting that it might be handled by an endorsement of contributorship over authorship. Before concluding we address an additional complication of including clinicians as coauthors in terms of accountability and responsibility. Because of their limited involvement, some might argue that clinicians should not be coauthors because they cannot assume responsibility for the work. In response, we suggest that on one reasonable interpretation of the ICMJE guidelines, it is not clear that we should think of coauthors as fully responsible for all parts of the work. But even so, we suggest that this problem might speak in favor of contributorship over authorship.

The ICMJE authorship criteria

The International Committee of Medical Journal Editors (ICMJE) has proposed the leading authorship criteria for medicine and several other research fields (ICMJE 2025). The underlying idea is that only if all criteria are fulfilled does the individual researcher qualify for co-authorship:

(1) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
(2) Drafting the work or reviewing it critically for important intellectual content; AND
(3) Final approval of the version to be published; AND
(4) 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.

It is easy to sympathize with the core ideas of the ICMJE recommendations. To deserve co-authorship, you must contribute to the work, and this contribution must be sufficiently large. But you also need to write or review the manuscript. The reason all coauthors must be involved, to some extent, in processing the manuscript is that they should get intellectually involved with the work, if they were not already before that point (Helgesson 2015). Final approval concerns explicitly accepting the version to be submitted to a journal. Approval is also tied to assuming responsibility for the work, a point further stressed in the fourth criterion.

If a collaborating researcher fulfills the first criterion, for instance by making a substantial contribution to data collection, then that researcher should be provided the opportunity to fulfill the remaining criteria. If a researcher does fulfill the first criterion and not the others, after having been provided the opportunity to do so, then that person should not be included as coauthor (ICMJE 2025). It is never sufficient for co-authorship, according to these guidelines, merely to satisfy the first criterion. The reason why the ICMJE takes this position is well known: academic authorship is never only about scientific merit, but also about responsibility for the work (COPE Council 2019; Wager 2009). You cannot properly assume responsibility for a paper unless you know what is in it and have critically reflected upon it.

Potential explanations of deviations from good publication practice

Ideally, then, all researchers included as coauthors on an academic paper fulfill all the ICMJE authorship requirements. Still, that does not always happen. Why not? There are many reasons why individuals deviate from the authorship criteria, and the literature is abundant (Aliukonis, Poškutė, and Gefenas 2020; Bülow and Helgesson 2018; Gureev, Lakizo, and Mazov 2019; Wager 2009; Wislar et al. 2011). One potential reason why clinicians in our case may insist on co-authorship without fulfilling all criteria is that they know they get away with it, since pre-clinicians need their help. But clinicians may also feel that they deserve authorship due to their (often) necessary contribution to the work (Haugen 2014; Helgesson et al. 2023). They may in fact also need the incentive to be motivated to take on the work of supplying their collaborators with samples or patient data obtained at the clinic – they have much work to do anyway, and helping researchers means pushing themselves even further. When prioritizing, they may decide that they barely find the time to make this contribution, and that critically reviewing the manuscript in addition to that is not doable (pers. comm. on repeated occasions). Collaborating pre-clinicians, on the other hand, may perceive themselves to have little choice if they are to count on the help from clinicians, or do not dare to risk wrecking a fruitful collaboration by bringing up the authorship criteria (Bülow and Helgesson 2018; Helgesson et al. 2023). There certainly does not have to be a conflict regarding the arrangement – clinicians and pre-clinicians may agree to the practice. Pre-clinicians may do so knowing that they thereby disrespect the ICMJE authorship criteria. They may simply think that getting the research done is more important.

Conflicting values

As suggested above, there is a potential value conflict between acting in accordance with established authorship criteria in order to stand up for fairness between researchers and assuring that planned research can be carried out. In short, what is best for fairness may be counterproductive for knowledge production, and vice versa. Although both values matter, one may argue that the overarching value for science is that of knowledge production, and that this goal therefore should trump other considerations. Against this may be argued that the fact that an activity has a certain overarching goal does not exclude that other considerations can be weightier, as moral restrictions on permitted actions. The fairness requirement, along with transparency and responsibility, can be understood as procedural requirements that scientific activities simply need to fulfill. There are, of course, external constraints on knowledge production as well. Research must not take place, e.g., at the cost of human life, health or wellbeing, excessive animal suffering, or environmental devastation. The idea that knowledge production, due to being the overarching goal of science, should always trump such considerations is clearly unreasonable. On the other hand, only if constraints are absolute restrictions do they determine the priorities. Arguably certain external constraints are of that kind, for instance avoidance of excessively risky research, while fairness and transparency in research perhaps are not. When restrictions are not absolute, the question remains how these conflicting values should be balanced.

We will not dwell over the general advantages of research here. Admittedly, the picture is complex when it comes to the chances for individual projects to actually contribute to knowledge development and positive societal effects, and sometimes societal progress is indeed better achieved by other activities than research, but that science overall contributes to increased knowledge and thereby increased opportunities to deal with problems faced in our societies will not be contested here. How the research interest should be balanced against other interests is another matter.

So let us consider why fairness is typically stressed in the context of authorship attribution. Firstly, unfairness is arguably wrong in itself, which would mean that it should always be considered and *pro tanto* countered. Secondly, unfairness may have negative consequences, not only for the disadvantaged but also for scientific development, since a fair distribution of academic merit increases the chances that the best researchers get the best opportunities to do research (Bülow and Helgesson 2018). Against this, those prioritizing science over fairness may argue that prioritizing research opportunities may influence many projects over time, with substantial effects on knowledge development and societal impact. This counter-argument may in turn be countered by pointing out that if the selection of which researchers get funding, positions, and power to steer research is far from optimal, the long-term negative consequences from this

may also be far-reaching. Thirdly, giving in to expectations to get authorship without fulfilling all authorship criteria is a way of supporting such an unsound practice, with the risk that deviations are eventually taken for granted. While this clearly risks being counterproductive, a counterargument would be to underline that generous inclusion is arguably a way of promoting team spirit and avoiding bitterness over exclusions, potentially leading to reduced productivity and even active undermining of the work. A way to balance this conflict would be to be generous at the margin while not letting generosity lead to unfairness.

Fourthly, in this context unfairness implies lack of transparency in the form of deceptive signaling of research contributions: researchers make one kind of contribution (in our example, mere acquisition of data) but get credit for another (full research involvement). Thus, the scientific record becomes skewed. A potential counterargument would be that excluding data-collecting collaborators from co-authorship might make the scientific record even more misleading, especially if the contribution was extensive and adequate use of contributorship statements is not in place. The most transparent description of contributions would be one that informs about all contributions without underestimating or exaggerating any of them. Any deviation from this would provide an unfair description of contributions.

Ways out of the conflict?

If there is a way to avoid the value conflict, this should be the preferred choice. For the pre-clinicians in our case, are there other equally skilled clinicians to collaborate with who would not insist on undeserved authorship? If not, what one is inclined to regard as the best solution to the value conflict discussed at least partly depends on what in the situation is perceived to be the constant, or given, and what is viewed as the variable, that which can be influenced. Opponents to the allocation of co-authorship to those who only fulfill the first criterion see present behavior as changeable – if concerned clinicians (in our case) were simply to fulfill all authorship criteria, there would be both valuable knowledge production and fair allocation of authorship, without a conflict between the two. However, if you instead see the sketched negative attitudes toward reading and revising the manuscript as unchangeable for some reason (like too pressured work conditions), then you need to invite the clinicians in the game by departing from fair authorship allocation. With this in mind, and on the assumption that behavior to some extent is changeable, reasonable steps to take would be to

- work on attitudes toward the ICMJE authorship criteria by, e.g., encouragement, education, and role-modeling – this would arguably need to be a shared effort between researchers, university administrations, and the leadership of researching hospitals;
- try to influence behavior in the individual situation, which could include encouragement, certain exertion of pressure but also practical things like allowing a certain delay in plans to provide time for reviewing; and
- never defect lightly if behavioral change fail – there should be an unwillingness to take this step, and perhaps an additional effort to identify alternative options before proceeding. Even if it is the overall best option in the situation, it nevertheless disrespects fairness and is, hence, wrong in some sense (Bülow and Helgesson 2018).

While a certain resistance to the final step on the list is needed, also to avoid eroding the principle that established authorship criteria should be respected, perhaps the only way out of this conundrum is to accept that either of the solutions can be justified at times: working on changing the attitudes and behavior of those who aspire for non-deserved authorship and in that way trying to dissolve the conflict in practice and at times accepting that the value-conflict cannot be dissolved and that one needs to let the research interest trump the fairness interest.

There are other proposals. One proposal is changing the values of institutions and how hiring and promotion criteria place value on authorship in the decision-making process. Yet another way of looking at it would be to say that the discussed value conflict between knowledge production and fairness is a construct resting on the assumption that fair and transparent recognition of research contributions is best expressed in terms of authorship. Arguably, the value conflict would disappear if one could break up present ties between recognition for one's work and being a coauthor (Curzer 2021; Smith 1997).

Work has been done to develop the contributorship option, the main point being to find a way to better include everyone's potentially career-relevant contribution to research, and not only those who pass the bar of authorship (Curzer 2021; Smith 1997). One of the more ambitious attempts is the Contributor Role Taxonomy (CRediT), introduced in 2014 with the aim to increase transparency by spelling out a greater variety of contributions and at a greater detail than normally achieved in standard author contribution lists (NISO 2026). CRediT provides a framework of 14 different roles a contributor may have. Among these are found funding acquisition, resource provision, project administration, software development, and supervision, all of which go beyond what is included in the ICMJE authorship criteria (NISO 2026). Applying a contributorship framework of this kind, it is no longer critical for recognition of one's contributions to fulfill the ICMJE criteria, and it may be a means to avoid inequities of traditional authorship norms, where certain professional groups have been advantaged while others have been disadvantaged (Sweeting et al. 2024). However, several challenges remain. Despite its broadened scope, CRediT may still not sufficiently capture the complexity of research contributions, and it may also be inconsistently applied. Furthermore, this option is far from established across journals (Godskesen, Helgesson, and Eriksson 2025; Kiser 2018).

If scientific merit were adequately handled by statements of contributorship in all research journals, and fully appreciated in that form, then authorship could either be dismissed as a no longer useful concept – or be reserved for those more intimately involved in the research questions of the project, without risking deserving contributors' chances of being adequately credited for their work.

It should be noted, however, that collaborations of the kind we have discussed might appear less attractive to those providing clinical data to the projects with contributorship statements than with authorship attribution. It cannot be excluded that part of the attraction of becoming a coauthor in such cases is exactly that your contributions appear to be greater than they in fact were. Such claims for more than you deserve can, of course, be transferred to contributorship statements; you simply have to be misleading about your own contributions in greater detail compared to when you incorrectly claim to deserve co-authorship. This reservation aside, contributorship, if sufficiently developed, is a more transparent way to handle scientific merit compared to authorship. In theory, at least, it is therefore preferable. However, as already suggested, if it is to function as a proper replacement and an unquestionable improvement, it needs to gain wider acceptance (Godskesen, Helgesson, and Eriksson 2025). And for both authorship and contributorship goes that they only correctly represent scientific merit if researchers report them honestly.

What about acknowledgments – do they have a role to play in this context? Historically acknowledgments have played the role of friendly gesture, not communicating academic merit. We see no point in developing acknowledgments further, since the best they may achieve is exactly what contributorship may achieve.

Expectations beyond feasibility?

A remaining issue concerns responsibility. In the leading authorship guidelines, there is a strong connection between authorship credit and responsibility (ICMJE 2025). Put differently, according to these guidelines, fair treatment of authorship credit includes that coauthors assume responsibility for the work. This requirement is not respected when collaborators insist on being included as coauthors while failing to read the manuscript or approving the final version. This means that the requirement plays a central role in the value conflict we are discussing.

However, the reasonableness of this requirement is arguably weakened if you can show that it is not realistic. Such an argument has been proposed by Levy in the context of whether to include large language models as coauthors (Levy 2025). He mainly argues that the responsibility requirement is unrealistic if meant to concern responsibility for all the work put in the paper: "[I]n contemporary science, it is *normal* for coauthors not to be able to take responsibility for the paper" (Levy 2025). Levy takes this further and argues that for much research, not least in medicine, *no one* is able take responsibility for every part of the paper. This argumentation is relevant to all situations where collaboration between research groups with widely shifting competencies means that it is not realistic to believe that researchers in one group can critically assess (all of) the contributions of the other groups (Curzer 2021). In collaborations that truly cross boundaries, it might very well be the case that researchers understand the relevance of collaborating without being able to assess the contributions of other groups. The larger the need to collaborate to add lacking competencies, the more difficult it becomes to take responsibility for what others are doing. It seems

unreasonable that such research should have to be published without authors since no one qualifies due to the responsibility requirement (Curzer 2021). Hence, there are reasons to believe that this strict responsibility requirement is not justified. Arguably it is not, not only because it is unfeasible but also because it is not justified to lay such responsibility for others' contributions on the individual researcher (Helgesson and Eriksson 2018). A more acceptable responsibility requirement should concern the individual researcher's own research contributions (Curzer 2021; Helgesson and Bülow 2025).

However, even if we leave the strict responsibility requirement aside, we suggest that there may be cases where some contributors cannot assume responsibility for any (or almost any) part of the paper – for instance, they may have contributed substantially to the work by providing data, but not to any analyses or interpretations. If the project concerns research beyond their own competence, they can undergo the process of reading through the manuscript, but it is questionable whether they can critically revise it or assume responsibility for anything in it (apart from a sentence stating from where data were collected). From the research quality perspective, it arguably makes no difference whether or not they read the manuscript with critical ambitions if they cannot evaluate it. Hence, there is the risk that this procedure becomes a scientific charade performed only in order for collaborating researchers to feel free to include them as coauthors. This example underlines the issue of lack of realism of the responsibility requirement. If one cannot assume responsibility by fulfilling the second and third authorship criteria, what is the point of trying to do so, apart from fulfilling the ritual?

ICMJE nevertheless seems right about proposing a tight connection between scientific credit and responsibility. If you are to be held responsible for your contributions by being rewarded with academic credit for them if successful, then you should also be held responsible if your contributions turn out to be problematic. Inspired by David Shoemaker, we suggest this relates to symmetry between praise and blame (Shoemaker 2024). Either you deserve it in both cases, i.e., both praise for doing well and blame for doing badly, or in none. This also implies that responsibility may be exaggerated "in both directions"; i.e., both regarding praiseworthiness and blameworthiness. In the case of collaborators merely providing important data, their responsibilities seem to be rightly limited to the quality of the data they provide. Unless this somehow is made explicit in the manuscript, there is little point for them in reading it for responsibility reasons. If the paper later is investigated under suspicion of scientific misconduct, then the data-providing clinician should, of course, facilitate the investigation by showing how and wherefrom data were extracted and made accessible to the research group.

While this argument might save mere data providers from reading the manuscript and assuming responsibility for some part of it, it also points to a reason to question why they should be included as authors in the first place, if they cannot engage intellectually with the research described in the manuscript, namely that what signifies participating in research as a *researcher* (and candidate for authorship) is that you at some stage are intellectually involved in the research. If you never are, then arguably you are not fully participating in research, but are merely helping the researchers out (Helgesson 2015). In other words, there is arguably more than one purpose with the second authorship criterion: by critically reviewing the manuscript, you are engaging intellectually with the work and can assume responsibility for it, since you now (if not before) know what finally got included.

Against this could be argued that specific technical or data contributions could require considerable intellectual involvement, even if the individuals providing these are not intellectually involved in the research questions or overall work of the project. Would that be enough to qualify as author? We take the most reasonable response to be that authorship relates to intellectual involvement in the research questions and how they are dealt with in the paper.

The conclusion to draw from this is that criticism of the responsibility requirement cannot dissolve the value conflict between the research interest and the interest in fair attribution of authorship. Another conclusion to draw from these remarks is that they underline the need to reconsider present use of authorship as the central form of scientific credit.

Conclusions

There is a potential value conflict between getting research done and maintaining fairness in distribution of scientific credit through authorship. We conclude that it is not justifiable to propose a general

solution to this problem involving letting one value systematically override the other. However, a justifiable procedure would involve first stressing the avoidability of the conflict by encouraging and nudging those who do not yet fulfill all authorship criteria to do so in the kind of collaboration we discuss. A complementary option is to give up on fairness in cases when such change is not achievable, and the work would otherwise be put to a halt, while not taking any such deviations lightly. A third option would be to try to circumvent the problem of fair treatment of authorship credit by establishing a new global practice stressing contributorship over authorship. This is an attractive option, although it has to be admitted that required routines are presently not in place with most journals.

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