

Articles

Does the new ICMJE criterion stem co-author overflow?

Natascha Gaster^a, Jorge S. Burns^b, Michael Gaster^{a,1}

^aLaboratory of Molecular Physiology, Departments of Pathology and Endocrinology, Odense University Hospital, 5000 Odense, Denmark

^bLaboratory of Cell Biology and Advanced Cancer Therapies, Department of Medical and Surgical Sciences for Children & Adults, University Hospital of Modena and Reggio Emilia, 41100 Modena, Italy

Received 13.01.2014, accepted 07.04.2014, published 13.04.2014

The ICMJE recommendations have recently been revised to include the addition of a fourth criterion to the Vancouver Protocol, the internationally recognized and globally applied standard for determining authorship on publications; authorship involves “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”.^[1] This development serves to prevent authors from delegating responsibility without further ado to another author should part of the article be questioned. In addition to accepting full responsibility for the parts he or she has done, the author should be able to identify which co-authors are responsible for other parts of the work. Herewith, we consider possible outcomes of this latest revision especially with regard to its broadest implications. Does this change mean we can expect a shift in authorship patterns? One can readily envisage two possibilities. On the one hand it might serve as a reminder that authorship reflects a substantial contribution to the entire research process, from conceptualization to writing the article, emphasizing concern for gratuitous co-authorships. Yet on the other hand it might result in more frequent accredited types of honorary authorship; whereby an “honorary guarantor” is invited to partake authorship so as to more comprehensively meet the explicit demand for accountability in the resolution of questions. Arguably such an initiative is already underway with the “Contributed Submission” process in addition to standard direct submission to the Proceedings of the National Academy of Sciences, USA. To contribute an article, an Academy member must affirm that he or she had a direct role in the design and execution of all or a significant fraction of the work and the subject matter must be within the member’s area of expertise. The articles must report the results of original research, receive comment from reviewers that are free of conflict of interest and remain subject to evaluation by the Editorial Board. Such endorsed articles need not necessarily improve quality, but provide an avenue for more controversial or innovative studies whose

significance may otherwise be difficult to appreciate.

Over recent years several studies show that the number of authors per scientific article is increasing, though the precise cause for this trend is not entirely known.^[2–5] Analysis of articles published in four prestigious American journals showed that single author articles were nearly extinct and that the average number of co-authors had increased from 4.5 in 1980 to 6.9 in 2000.^[3] Arguably, this could simply reflect the increased complexity of multidisciplinary research, but this assumption has been challenged. In a 2008 study, Papatheodorou *et al.*, examined the average number of authors per article in different topics spanning the years 1985–2005 and suggested that heightened complexity alone was unlikely to account for finding an increased number of authors in every topic; rather it might also reflect a prevalent “publish or perish” mentality.^[4] This stigma is a consequence of a growing use of scientometric data for career advancement since Hirsch presented the h-index in 2005.^[6] This index aimed to reflect both productivity and the impact of published work and is commonly used nowadays for appraisal of researchers not only for appointing promotions, but also for awarding research funds. Arguably, even h-index assessments principally reflect the number of publications, emphasizing productivity yet weakening the importance of quality and significance.^[7,8] Beyond self-promoting objectives, researchers may feel encouraged to expand co-authorship for the more altruistic goal of establishing collaborative research centers, given that sponsors may require evidence of pre-existing collaboration for positive evaluation.

An associated trend accompanying more authors is an increasing number of shared co-first or co-last authors with one self-defeating result from large numbers of authors and divisions being that with increasingly diluted contributions the significance of authorship declines and true merit is called into question.^[9] Perhaps the most pernicious contributions are coercive authorships, an obsequious nod to the pressure of patronage claimed by a senior position and hon-

¹e-mail: michael.gaster@rsyd.dk

orary authorships involving a renowned scientist who has not participated in the study but is invited with the aim of facilitating the publication process through prestige. Thus it is important to take into consideration that all four ICMJE authorship criteria need to be upheld.

We argue that one possible response to the new criterion for authorship might be the evolution of a new alternative type of honorary authorship – namely, honorary expert authorships. In contrast to maligned credential-inflating honorary authorships, a manuscript might be supported by an expert specialist in the field who despite little direct involvement in the study is deemed a necessary author to fulfill the accountability criterion.

Given such observations concerning current practice, will the new ICMJE authorship recommendations lead to any authorship changes? With a prominent “publish or perish” dilemma, the present situation may be slow to change and only reappraised assessment metrics and greater work ethic compliance would likely influence this trend.^[10] Some institutions define guest authorship as scientific misconduct, but not all. However, unless there is universal adoption of more stringent attribution criteria, those who first comply might ironically be disadvantaged, seeming to have fewer publications than their less ethical peers. The long-term consequences for science and education would be severe if quality were to give way to quantity.

Some Journal Chief Editors have aimed to diminish profligate authorships by stipulating a maximum number of authors per article. However, declaring the permitted maximum number of authors may be interpreted as license to reach it and inadvertently encourage a permissive approach to authorship.^[3] In addition, many journals have introduced the policy that manuscripts need precise identification of

each author’s contribution, although terms such as “final approval of manuscript” remain open to exploitation. Despite these initiatives we still observe an increased number of co-authors. This would suggest that more drastic steps are needed if we are to see a change in the current practice. In theory the new ICMJE recommendation is a step towards more ethical accreditation for research but it will not in practice be very influential without accompanying changes, with broader acceptance and implementation of the need to emphasize quality versus quantity.

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