Does listing of individual contributions in “Mega-Authorship” papers always follow best practice guidelines?

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“There are two kinds of people, those who do the work and those who take the credit. Try to be in the first group; there is less competition there.”

Indira Gandhi (1917–1984)

Deciding who should be included in the authorship of a paper is a process that is often fraught with problems and determining an individual’s exact contribution and/or placement in a group of collaborating authors may engender quite intense debate. This is particularly so for significant research where funding may be an issue. In addition, in recent years there appears to have been a decrease in the number of single author papers with an increase in the number of authors who are being listed as contributors [1]. MacFarlane showed that the percentage of multi author papers had increased from 3/24 (12.5%) to 83/126 (65.9%) between 1976 and 2014 [2]. While this may in part reflect the need for collaboration to address major scientific questions, it is now common for even simple case reports to have 10 or more contributing authors. A concerning fact that has been identified by publishers and passed on to editors is the adding of additional authors in the proof stage, sometimes for financial reasons. It is also recognized that young, early career researchers are sometimes strongly pressured into adding senior people who are not directly involved in their research, such as the head of department or research laboratory, onto their publications. This has been the unfortunate personal experience of both of the authors and has been referred to as “publication parasitism” [3]. It may also be extraordinarily difficult in papers with large numbers of authors from multiple institutions for the lead authors to keep track of the source and relative significance of the contributions. In one case of multiple authorship known to the authors, several of the contributors

had not actually heard of one of the authors who it transpired had passed away several years before the paper had been written.

Fortunately to assist researchers and writers with this process there are clearly published guidelines available. The International Committee of Medical Journal Editors (ICMJE) recommends that authorship should be based on the following four criteria:

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 revising 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.”

“All those designated as authors should meet all four criteria for authorship, and all who meet the four criteria should be identified as authors. Those who do not meet all four criteria should be acknowledged” [4]. These parameters are quite clear and have been promulgated by prestigious publications such as the British Medical Journal [5], although they are apparently not adhered to by all journals [6].

Our own philosophy aligns with this in that we consider that authorship should include only those who have contributed significantly to the conception, development, testing, data accrual and analysis and writing of a paper. All others who may have assisted in a minor capacity should only be acknowledged. The National Coronial Information System (NCIS) in Australia and New Zealand provides de-identified information from local jurisdictions to assist research into forensic and epidemiological matters [7]. If everyone who contributed data were to be included as an author, nearly every forensic pathologist in Australia and New Zealand might be a co-author on every paper that used such material, clearly an untenable and unreasonable outcome. However,

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Table 1 Suggested checklist for the assessment of papers submitted to academic journals (taken from ICMJE recommendations) [4]

Criteria	Yes	No
Did you substantially contribute to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work		
Did you participate in drafting the work or in revising it critically for important intellectual content		
Did you give final approval of the version to be published		
Do you agree 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		

we are more and more seeing large, particularly international, studies where over 100 authors may be included. These appear to be in an altogether separate category to simple multiple authorships and so perhaps should be termed “mega authorship” papers. The question that is not often asked is: “does a 1% contribution really constitute a substantial contribution to a paper?”.

Problems with the issue of multiple authorship are not new and were discussed by Lindsey in a paper in 1980 [8]. Unfortunately, the direct result of the more recent practice of mega authorship is often to very quickly enhance the citation rate, h-index and curriculum vitae (CVs) of individuals in a particular field. This could easily elevate relatively minor researchers to the apparent forefronts of their particular fields and have the effect of reducing the usefulness of established parameters that have been previously used to assess academic success and productivity. It would be an interesting situation to apply a legal approach to this issue – “Can you answer just one question – what was your substantial contribution to this work and did you fulfil all four of the ICMP guidelines?”.

To assess the credibility of individual contributions, mega authorships should provoke editors to always request contribution disclosures, a practice that is now becoming commonplace with a number of publishers, including the Nature group. The experience of FSMP is that when contribution disclosures are asked for, authors are usually removed. Alternatively, or in addition, all journals should perhaps require a tick box based on ICMJE guidelines [3] that has to be signed by all contributors (Table 1). Any unclear areas in the tick box would require further clarification, and any answers of “no” would preclude authorship.

How do we then deal with papers that have already been published and highly cited? Perhaps the CVs of those listing mega authorship papers should in some way flag the authorship position e.g. authorship position #98 of 100? Certainly, that would be more useful to reviewers of grant or promotion applications than the frequently observed “Author 1, Author 2 Author 67, et al.” now starting to be used for these papers.

CV building by paying predatory journals to publish papers with inadequate peer review processes is another recent development that has undermined assessment parameters and academic standing [9]. Given the apparent increase in the number of mega authorship papers, notably in cases where access to expensive equipment, access to databases, access to patients or simply access to a lab is being used to justify authorship, we would suggest that further discussion of this issue is urgently needed. Perhaps editorials from other journals providing alternative views would be helpful in shedding further light on the publishing process and in clarifying this issue.

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