CORRESPONDENCE

Improving the biomedical research literature: insights from authors' editors can help journal editors define and refine their core competencies [version 1; peer review: 2 approved]

Valerie Matarese ¹, Karen Shashok ²

¹Via Roma 10, I-31020 Vidor (TV), Italy

²C./ Compositor Ruiz Aznar 12, 2-A, 18008 Granada, Spain

V1 First published: 25 Jan 2018, 7:109
<https://doi.org/10.12688/f1000research.13760.1>

Latest published: 21 Feb 2018, 7:109
<https://doi.org/10.12688/f1000research.13760.2>

Abstract

A team of stakeholders in biomedical publishing recently proposed a set of core competencies for journal editors, as a resource that can inform training programs for editors and ultimately improve the quality of the biomedical research literature. This initiative, still in its early stages, would benefit from additional sources of expert information. Based on our experiences as authors' editors, we offer two suggestions on how to strengthen these competencies so that they better respond to the needs of readers and authors – the main users of and contributors to research journals. First, journal editors should be able to ensure that authors are given useful feedback on the language and writing in submitted manuscripts, beyond a (possibly incorrect) blanket judgement of whether the English is “acceptable” or not. Second, journal editors should be able to deal effectively with inappropriate text re-use and plagiarism. These additional competencies would, we believe, be valued by other stakeholders in biomedical research publication as markers of editorial quality.

Keywords

Authors' editor, Citation, Core competencies, Decision-making editor, English language, Journal policies, Plagiarism, Scientific editor

This article is included in the **Research on Research, Policy & Culture** gateway.

Open Peer Review

Approval Status

	1	2
version 2 (revision) 21 Feb 2018		
version 1 25 Jan 2018	 view	 view
1. Joy Burrough-Boenisch , Unclogged English, Renkum, The Netherlands 2. Na Luo , Wuhan University of Science and Technology, Wuhan, China		
Any reports and responses or comments on the article can be found at the end of the article.		

Corresponding author: Karen Shashok (kshashok@kshashok.com)

Author roles: **Matarese V:** Conceptualization, Investigation, Methodology, Resources, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Shashok K:** Conceptualization, Investigation, Methodology, Resources, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: VM and KS are both self-employed authors' editors and realize that this article might attract clients. VM is the author of the book *Editing Research* and realizes that this article might affect sales. VM and KS are both long-time members of Mediterranean Editors and Translators, and have been unpaid speakers at CPD events run by this organization. KS was Vice Chair of Mediterranean Editors and Translators during 2006. KS is a long-time member of Asetrad and was an unpaid speaker at a CPD event run by this organization in 2017.

Grant information: The author(s) declared that no grants were involved in supporting this work.

Copyright: © 2018 Matarese V and Shashok K. This is an open access article distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Matarese V and Shashok K. **Improving the biomedical research literature: insights from authors' editors can help journal editors define and refine their core competencies [version 1; peer review: 2 approved]** F1000Research 2018, 7:109 <https://doi.org/10.12688/f1000research.13760.1>

First published: 25 Jan 2018, 7:109 <https://doi.org/10.12688/f1000research.13760.1>

Correspondence

Journal editing cannot be learned in higher education, and alternative training opportunities are not readily available. To guide such training and ultimately improve the quality of published research, Moher and colleagues defined core competencies (CC) for editors of biomedical journals. They did a literature review¹, surveyed 148 journal editors², and used a Delphi-like process to rank different competencies³, resulting in a consensus statement signed by 30 stakeholders in research publishing³. We commend this initiative to help journal editors work responsibly and accountably, and offer suggestions on areas that might benefit from additional input.

Moher *et al.* do not use the term “journal editor” but rather “scientific editor”, defined as someone “who make[s] decisions on the content and policies of a journal — including editors-in-chief and associate/academic editors”². This definition excludes other editors who contribute to the quality of research publications, in contrast to the broader meaning of “science editor” used by two stakeholder groups in the consensus initiative (Council of Science Editors, European Association of Science Editors). To avoid confusion regarding who the CC are intended for, a term such as “decision-making editor” might be helpful. For simplicity’s sake, here we use “journal editor” to refer to the type of editor we assume the CC are intended for.

As Moher *et al.* concede, “time and resource constraints ... limited inclusion of perspectives of other relevant groups (e.g. authors, readers, peer reviewers)” in developing the CC³. We believe input from authors is fundamental to efforts to define competencies of journal editors, and suggest that insights into authors’ (sometimes less than satisfactory) experiences with journals can be provided by another type of editor, namely authors’ editors^{4–10}. These editors help researcher-authors prepare manuscripts for publication by reading drafts and suggesting changes to structure and content (substantive editing), language

and style (language editing), and appearance and format (e.g. compliance with journals’ instructions)^{9,11}. In addition, many authors’ editors train researchers in publication skills^{12–17} and help authors navigate editorial processes^{18–21}. Authors’ editors’ knowledge of the publication process and their close interactions with the producers, distributors and consumers of research information make them qualified to help define CC for journal editors and identify deficiencies in current practices⁸.

Authors’ editors are often more familiar with researchers’ local circumstances and challenges than journal editors are. Although the writers of the consensus statement and their informants are themselves researchers and therefore authors, they were perhaps not representative of the wider population of “real-world” researchers who have limited contact with English-speaking opinion leaders in biomedical publishing. In contrast, many authors’ editors work with researchers whose first language is not English or who are based outside the global North and West. Familiarity with other languages and cultures gives authors’ editors insights into the types of competencies researchers from diverse geographical, cultural and linguistic backgrounds would value in journal editors.

Like journal editors, authors’ editors are taking steps to critically evaluate and improve their working methods. A growing body of literature⁹ facilitates knowledge transfer to colleagues in different settings. PhD degrees have been awarded to authors’ editors for applied linguistics research based on their work practices in the Netherlands²², Spain²³ and China (Luo²⁴ and unpublished; available upon request). Continuing professional development for authors’ editors is available through national and international associations (Table 1). Authors’ editors in these associations can provide valuable information about journal editor CC that researchers would value. As authors’ editors ourselves, we offer suggestions on how to improve the CC based on insights we and our colleagues gain about researchers’ experiences with peer review.

Table 1. Professional associations that provide continuing professional development for authors’ editors (and other types of editors).

Association	Membership ^a	Year founded	Website
Editors' Association of Canada (Editors Canada)	Canada and North America	1979	www.editors.ca
Society for Editors and Translators (SfEP)	UK and Europe	1988	www.sfep.org.uk
Society of English-language professionals in the Netherlands (SENSE)	The Netherlands and Europe	1990	www.sense-online.nl
Institute of Professional Editors (IPEd)	Australia	1998	www.iped-editors.org
Asociación Española de Traductores, Correctores e Intérpretes (Asetrad)	Spain and Europe	2003	www.asetrad.org
Mediterranean Editors and Translators (MET)	Spain and Europe	2006	www.metmeetings.org
Nordic Editors and Translators (NEaT)	Finland and Europe	2014	nordicedit.fi

^a Country and continent in which most members live

In our experience, reviewers and journal editors increasingly cite “problems with the English” as a reason for rejection, even of manuscripts free from language errors. Meanwhile, biomedical journals publish an ever-increasing proportion of articles that were judged by reviewers to have “acceptable English” but which contain awkwardly worded statements that defy comprehension and undermine reproducibility^{9(pp5–9)}. To avoid these problems, journal editors should be able to either provide authors with useful feedback on the language (e.g. by endorsing or overruling reviewers’ complaints) or delegate this responsibility to an appropriately skilled reviewer or editorial staffer. Relying solely on blanket “acceptable/unacceptable” assessments of the writing contributes, in our experience, to cynicism among authors regarding the fairness and quality of peer review, and to the proliferation of poorly written articles. Although we realize that skills in “dealing with language issues” and knowledge about the “fundamentals of editing” were considered but then excluded from the CC², we believe that inclusion of a competency in this area would be welcomed and perceived as a marker of editorial quality.

Another competency researchers would appreciate is the ability of journal editors to deal effectively with inappropriate text re-use. This omission from the CC is surprising, especially since plagiarism featured in two of the 23 highly ranked statements in the Delphi process². While working with authors on manuscripts, authors’ editors sometimes encounter re-used text and inadequate citation, and use these opportunities to explain why these practices may be inappropriate and how to avoid them²⁵. But these individual efforts are not enough to stop the global spread of plagiarism in published research, which journal editors may inadvertently facilitate if they do not check manuscripts carefully enough before publication. Journal editors should be able to interpret the results of “plagiarism-detection” software and deal sensitively with the manuscripts these tools single out (as proposed by the Committee on Publications Ethics, publicationethics.org/files/u2/02A_Plagiarism_Submitted.pdf). Setting a maximum

allowable percentage of text overlap, without considering the context of the non-original text, may send inconsistent messages about appropriate and inappropriate text re-use. Manuscript rejection based solely on the percentage of non-original text can, in our experience, alienate well-meaning authors from journals that use this criterion.

These are just two of the areas where authors’ editors can provide valuable input for future efforts to define and refine CC for biomedical journal editors. Alongside earlier efforts to support professional and ethical practices^{26–28} (see also: publicationethics.org/files/editable-bean/COPE_Core_Practices_0.pdf, and www.wame.org/about/syllabus-for-prospective-and-newly-appointed), the CC may indeed help gatekeepers meet researchers’ and readers’ expectations for editorial practices that ultimately improve the quality of published research.

Competing interests

VM and KS are both self-employed authors’ editors and realize that this article might attract clients. VM is the author of the book *Editing Research* and realizes that this article might affect sales. VM and KS are both long-time members of Mediterranean Editors and Translators, and have been unpaid speakers at CPD events run by this organization. KS was Vice Chair of Mediterranean Editors and Translators during 2006. KS is a long-time member of Asetrad and was an unpaid speaker at a CPD event run by this organization in 2017.

Grant information

The author(s) declared that no grants were involved in supporting this work.

Acknowledgements

We thank Marije de Jager for constructive feedback on an earlier draft of the manuscript.

References

- Galipeau J, Barbour V, Baskin P, et al.: **A scoping review of competencies for scientific editors of biomedical journals.** *BMC Med.* 2016; **14**(1): 16. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Galipeau J, Cobey KD, Barbour V, et al.: **An international survey and modified Delphi process revealed editors’ perceptions, training needs, and ratings of competency-related statements for the development of core competencies for scientific editors of biomedical journals [version 1; references: 2 approved].** *F1000Res.* 2017; **6**: 1634. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Moher D, Galipeau J, Alam S, et al.: **Core competencies for scientific editors of biomedical journals: consensus statement.** *BMC Med.* 2017; **15**(1): 167. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Applewhite LB: **The author’s editor.** *Med Communications.* 1973; **1**: 16–20.
- Tacker MM: **Author’s editors: catalysts of scientific publishing.** *CBE Views.* 1980; **3**: 3–11. [Reference Source](#)
- Eastwood S: **The author’s editor in the setting of a university or research center.** *J Res Communication Studies.* 1981; **3**: 211–6.
- McNab SM: **The ethics of author’s editing.** In: Weeks RA, Kinser DL, editors. *Editing the refereed scientific journal: practical, political and ethical issues.* New York: IEEE; 1994; 167–77.
- Shashok K: **Author’s editors: facilitators of science information transfer.** *Learn Publ.* 2001; **14**(2): 113–21. [Publisher Full Text](#)
- Matarese V: **Editing research: the author editing approach to providing effective support to writers of research papers.** Medford: Information Today; 2016. [Reference Source](#)
- Burrough-Boenisch J: **Editing non-native English: reflections from a Netherlands-based editor on those who do it and the skills they should have.** *The 21st Century Text.* 2013; **13**(1). [Reference Source](#)
- Burrough-Boenisch J, Matarese V: **The authors’ editor: working with authors to make drafts fit for purpose.** In: Matarese V, editor. *Supporting research writing: roles and challenges in multilingual settings.* Oxford: Chandos; 2013; 173–89. [Publisher Full Text](#)
- Eastwood S, Derish PA, Berger MS: **Biomedical publication for neurosurgery residents: a program and guide.** *Neurosurgery.* 2000; **47**(3): 739–48; discussion 748–9. [PubMed Abstract](#) | [Publisher Full Text](#)

13. Derish PA, Maa J, Ascher NL, *et al.*: **Enhancing the mission of academic surgery by promoting scientific writing skills.** *J Surg Res.* 2007; **140**(2): 177–83.
[PubMed Abstract](#) | [Publisher Full Text](#)
14. Cameron C, Deming SP, Notzon B, *et al.*: **Scientific writing training for academic physicians of diverse language backgrounds.** *Acad Med.* 2009; **84**(4): 505–10.
[PubMed Abstract](#) | [Publisher Full Text](#)
15. Cameron C, Chang S, Pagel W: **Scientific English: a program for addressing linguistic barriers of international research trainees in the United States.** *J Cancer Educ.* 2011; **26**(1): 72–8.
[PubMed Abstract](#) | [Publisher Full Text](#)
16. Dornhoffer MK: **Beyond editing: an experience in mentoring provided by an academic health care center's office of grants and scientific publications.** *AMWA J.* 2012; **27**(4): 147–51.
17. Matarese V: **Collaborative research writing: developmental editing with an underlying educational vein.** In: Matarese V, editor. *Supporting research writing: roles and challenges in multilingual settings.* Oxford: Chandos; 2013; 221–35.
[Publisher Full Text](#)
18. Shashok K: **Authors' editors in the 21st century: promoters of publication quality and efficiency.** *European Science Editing.* 2014; **40**(3): 60–2.
[Reference Source](#)
19. Breugelmans R, Barron JP: **The role of in-house medical communications centers in medical institutions in nonnative English-speaking countries.** *Chest.* 2008; **134**(4): 883–5.
[PubMed Abstract](#) | [Publisher Full Text](#)
20. Aribisala W: **How are non-native-English-speaking authors coping with the requirements to publish in English-language journals?** *Science Editor.* 2010; **33**(6): 189.
[Reference Source](#)
21. Shashok K: **Speaking virtually the same language: coding and decoding messages between authors and editors.** *European Science Editing.* 1994; **53**: 5–7.
22. Burrough-Boenisch J: **Culture and conventions: writing and reading Dutch scientific English.** Utrecht: Netherlands Graduate School of Linguistics; 2002; LOT no. 59.
[Reference Source](#)
23. Shaw O: **From process to product: a text-based ethnographic study of ten biomedical research articles by Spanish authors.** Doctoral thesis, Universidad de Zaragoza; 2017.
[Reference Source](#)
24. Luo N, Hyland K: **Intervention and revision: expertise and interaction in text mediation.** *Written Communication.* 2017; **34**(4): 414–40.
[Publisher Full Text](#)
25. Kerans ME, de Jager M: **Handling plagiarism at the manuscript editor's desk.** *European Science Editing.* 2010; **36**(3): 62–6.
[Reference Source](#)
26. Bard AJ: **Ethics of editors.** In: Weeks RA, Kinser DL, editors. *Editing the refereed scientific journal: practical, political and ethical issues.* New York: IEEE; 1994; 147–55.
27. Kleinert S, Wager E: **Responsible research publication: international standards for editors.** A position statement developed at the 2nd World Conference on Research Integrity, Singapore, July 22–24, 2010. In: Mayer T, Steineck N, editors. *Promoting research integrity in a global environment.* Singapore: World Scientific Publishing; 2012; 317–28.
[Reference Source](#)
28. Smart P, Maisonneuve H, Polderman A, editors: **Science editors' handbook, 2nd ed.** Redruth: European Association of Science Editors; 2013.

Open Peer Review

Current Peer Review Status:

Version 1

Reviewer Report 12 February 2018

<https://doi.org/10.5256/f1000research.14953.r30328>

© 2018 Luo N. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Na Luo

School of Foreign Languages, Wuhan University of Science and Technology, Wuhan, China

In this correspondence, two well-known European authors' editors, Dr. Valerie Matarese and Ms. Karen Shashok, raise two very interesting points to enhance the core competencies (CC) list for biomed journal editors in Moher *et al* (2017). They aptly argue that the perspective from authors is essential to define journal editor CC and thus inappropriate to be overlooked. Then they indicate that authors' editors can give insights on authors' behalf when reliable author opinion is not readily available by calling attention to the work of authors' editors and their advantage over journal editors in familiarity with authors in different contexts.

The two points they suggest to be added to the CC list of Moher *et al* (2017) are not only insightful but also very caring for most EAL (English as an additional language) scholars who often struggle to publish in a language they do not have much control. The first one is that the CC list should re-include journal editors' competence to give useful feedback on language and writing to authors instead of relying on standardized reviewer reports where this aspect is simply judged "acceptable" or "unacceptable". In a highly globalized academic community where biomedical journals are at the very forefront of globalization, it is unrealistic to expect most reviewers to give concrete language and writing feedback to researchers, particularly EAL ones. Therefore, it seems incumbent on journal editors to possess this as a core competence. What I am thinking here is that journal editors may also need more knowledge of authors' editors. This is because EAL researchers need to be referred to the right authors' editors for support when fixing the language and writing problems goes beyond their own capacity.

The second competence Matarese and Shashok suggest to add is that journal editors should be able to interpret results of plagiarism-detection software sensibly and sensitively rather than simplistically relying on arbitrarily set maximum-text-overlap percentages. As is known to writing researchers and authors' editors, text re-use is an important, if not the most, way for EAL scholars to learn academic writing and compose papers in English. Journal editors' lack of ability to tell the difference between plagiarism and well-meant text re-use can render them to punish the innocent and alienate EAL scholars from their journals, as convincingly argued by the two authors of this piece.

Overall, I find the suggestions of Matarese and Shashok very useful to refine the CC list for journal editors, as given in Moher *et al* (2017), in a well-crafted text. Their effort to support EAL scholars in ways beyond working on manuscripts should be commended. Therefore, I recommend that this correspondence be indexed as soon as possible. If they would like to add that journal editors also need to have the ability to refer EAL scholars to proper authors' editors, I would appreciate this piece even more.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: I am a researcher on the activities of authors' editors. I have published on authors' editing.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 19 Feb 2018

Karen Shashok

We concur with Dr. Luo's understanding of language and writing in the current globalized context of research publishing, including some EAL scholars' recourse to text re-use to produce acceptable English. We also agree that suggestions by journal editors on where authors could obtain help is a competency that researchers are likely to value, and have noted this in version 2. Many journals already list commercial editing service providers on their websites, but the scope and quality of these services vary.

Journal editors have differing criteria for "acceptable" English or writing, but as the ultimate arbiters of when the language and writing are "good enough" for publication in their journal, they should, for the sake of transparency and fairness, let authors know what criteria they use to decide which texts are publishable and which need improvement.

Competing Interests: No competing interests were disclosed.

Reviewer Report 05 February 2018

<https://doi.org/10.5256/f1000research.14953.r30325>

© 2018 Burrough-Boenisch J. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Joy Burrough-Boenisch

Unclogged English, Renkum, The Netherlands

Written by two long-standing, respected professional biomedical authors' editors, this article

responds to the proposal to create core competencies (CC) “for scientific editors of biomedical journals”. Although commending the proposal, Matarese and Shashok point out that Moher *et al.*’s use of the term “scientific editor”, instead of “journal editor” or “decision-making editor”, might raise confusion about the type of editor to which the CC apply. They also argue that when refining the CC, authors’ experiences with journals provide useful insights into the CC needed by journal editors.

Matarese and Shashok point out that some scientific editors do not work for a publisher or journal but instead work closely with researcher-authors, helping them to produce publishable papers – a service particularly helpful to authors writing in their second (or third) language or living in the Global South. These “authors’ editors” can also help their author clients to deal with reviewer comments and journal-related correspondence, thereby accumulating valuable information on authors’ experiences with journal editors. Authors’ editors are thus well-placed to contribute to formulating certain CC, especially in relation to assessing the quality of the English and providing clear, constructive feedback to authors. Drawing on their extensive knowledge of journal–author intercommunication, Matarese and Shashok plead for reversal of the decision not to include competence to deal with language issues and knowledge of the “fundamentals of editing” from the CC. They also express surprise at another omission: competency in plagiarism detection. Again, they point out relevant insights that authors’ editors can supply.

Matarese and Shashok’s case for expanding and refining the CC with the help of authors’ editors is convincingly argued. They have underpinned it with references to relevant publications by authors’ editors that are probably unfamiliar to editors of science journals. The table of editors’ associations indicates that there are professional associations providing CPD that committed, principled authors’ editors may join. All this helps broadcast the actual and potential usefulness of authors’ editors to researcher-authors, journals, journal reviewers and journal editors. However, to avoid creating the impression that all authors’ editors are suitably trained, optimally competent in all the editing they undertake, involved members of appropriate associations and proactive in undertaking CPD, Matarese and Shashok should acknowledge that there are no CC for authors’ editors, nor are authors’ editors required to have certain academic or professional qualifications. Matarese and Shashok are currently among the most respected and high-profile biomedical authors’ editors; their plea to involve authors’ editors in developing CC for journal editors should be placed in that context.

Is the rationale for commenting on the previous publication clearly described?

Yes

Are any opinions stated well-argued, clear and cogent?

Yes

Are arguments sufficiently supported by evidence from the published literature or by new data and results?

Yes

Is the conclusion balanced and justified on the basis of the presented arguments?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: I am an experienced authors' editor myself, though not in the field of biomedicine. I have published on editing, particularly on the editing of non-native English.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 19 Feb 2018

Karen Shashok

We appreciate Dr. Burrough-Boenisch's cautionary note on the variations in authors' editors' skills, practices and commitment to continuing education, which are to be expected for any profession that does not have defined entry qualifications or agreed-upon CC.

The author editing literature contains several proposals for key skills and tasks (see, for example, Lang 1999; Burrough-Boenisch 2013; Chapter 7 in Matarese 2016), but although they overlap to some extent, they also tend to reflect the particular circumstances of different authors' editors' professional settings, clients and disciplinary focus. Although several professional associations offer formal certification, these programs do not cover all facets of author editing, such as the interpersonal aspects of working with researchers and the value of multilingualism. Like journal editors, authors' editors with different skills, strengths and specialist knowledge can provide valuable services in some areas, but may have shortcomings in other areas. Our impression is that authors' editors are likely to be transparent about their strengths and limitations, in order to help researchers decide whether they are able to provide the right types of support.

We have noted the lack of universally agreed-upon professional qualifications for authors' editors in version 2.

Burrough-Boenisch J: Editing non-native English: reflections from a Netherlands-based editor on those who do it and the skills they should have. The 21st Century Text. July 30, 2013.

Lang TA: A curriculum for biomedical writing and editing: a second volley. CBE Views. 1999; 22(1): 3-5.

Matarese V: Editing research: the author editing approach to providing effective support to writers of research papers. Medford: Information Today; 2016.

Competing Interests: No competing interests were disclosed.

Comments on this article

Version 1

Reader Comment 26 Jan 2018

Ravi Murugesan

I think this piece is an important addition to the literature about author editing. I would like to ask the authors to consider including more citations to sources from beyond the global North or West. For example, the open access journal [Science Editing](#), published by the Korean Council of Science Editors, occasionally carries articles on language editing and manuscript editing. I've linked to a couple of these below:

[Education for local Asian journal editors](#)

[Publishing a journal in English: tips for journal editors who are non-native English speakers](#)

Competing Interests: I'm the author of the second article mentioned in my comment

Author Response 26 Jan 2018

Karen Shashok

Our colleagues at the Society for Editors and Proofreaders <https://www.sfep.org.uk/> have alerted us to an error in the name of this organization in Table 1, for which we sincerely apologize. This will be corrected in the next version of the article.

Valerie and Karen (off to sign up for a refresher course in proofreading!)

Competing Interests: Authors of the article.

The benefits of publishing with F1000Research:

- Your article is published within days, with no editorial bias
- You can publish traditional articles, null/negative results, case reports, data notes and more
- The peer review process is transparent and collaborative
- Your article is indexed in PubMed after passing peer review
- Dedicated customer support at every stage

For pre-submission enquiries, contact research@f1000.com

F1000Research