

No one left behind: a case for more inclusivity in authorship for quality improvement and implementation research

Jennifer S Myers ^{1,2} Meghan Lane-Fall,^{2,3,4} Christine Soong ^{5,6,7}

For numbered affiliations see end of article.

Correspondence to

Dr Jennifer S Myers, Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, USA; jennifer.myers2@penmedicine.upenn.edu

Accepted 13 May 2021

Authorship has long been seen as the coin of the realm in academic medicine. Students seek publications on their resumes, faculty get promoted at least in part based on publication volume and impact and anyone who succeeds in authoring a publication points proudly to the external recognition that legitimises their work. So, what happens when a new type of science that involves rapid tests of change, diverse team members and the realities of shifting institutional priorities becomes a prevalent and acceptable form of scholarship in healthcare? Phillips and colleagues in this issue of *BMJ Quality & Safety*, argue how authorship determination in quality improvement (QI) and implementation research warrants a unique approach compared with traditional human subjects research where authorship has been discussed extensively.¹ Their Viewpoint highlights the International Committee of Medical Journal Editors (ICMJE) guidelines for authorship and notes the subjectivity of the guideline criteria that states, ‘the author made substantial contributions to the conception or design of the work or the acquisition, analysis or interpretation of the data’.² Phillips and colleagues then discuss three areas that they believe should be considered by QI and implementation research teams when approaching manuscript development: (1) the degree to which the improvement work is generalisable enough to warrant dissemination through publication; (2) what ‘counts’ as substantial contribution to warrant authorship and (3) how the timing of authorship determination can influence invitations for and determinations about authorship. This topic provides us with

an opportunity to consider how QI and implementation research publication discussions unfold in real world practice. In particular, we expand on their second objective related to authorship and discuss how we as a community of improvement scholars might be more inclusive.

Imagine the following scenario: You are leading an initiative designed to reduce unnecessary antibiotics for patients with pneumonia in your hospital. You assemble an interdisciplinary team including hospitalists, intensivists, pharmacists and infectious disease specialists to create a clinical pathway based on the latest evidence. The new pathway is presented to clinicians in several formats and endorsed by the director of infection control and other hospital leaders. Six months after dissemination of the pathway, you learn about a different QI team at your hospital that has demonstrated a reduction in CT scan ordering by emergency medicine physicians using an electronic audit and feedback tool. Your team decides to adapt this innovation to focus on antibiotic prescribing rates and naturally expands to include informatics experts. More months go by and you begin to see positive results in your process and outcome measures. After one of your QI meetings to review the data, a team member approaches you to discuss whether the work could be published and if they could help take the lead. As you begin to outline the potential manuscript with this team member, the question arises, ‘Who else has substantially contributed and should we invite as an author?’

This example highlights how the life cycle of improvement work typically includes an increasing number



► <http://dx.doi.org/10.1136/bmjqs-2020-011786>



© Author(s) (or their employer(s)) 2021. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Myers JS, Lane-Fall M, Soong C. *BMJ Qual Saf* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bmjqs-2021-013067

of (different) stakeholders as the project naturally evolves. Stakeholder analysis activities are designed to be iterative and inclusive by listing relevant parties and considering their perspectives and interests related to a problem. While many QI teams diligently complete a stakeholder analysis at the beginning of their work, new stakeholders and team members often become apparent as the project unfolds. When the time comes to write a manuscript, these factors can make authorship invitations challenging, and at times we may not be as inclusive as we think.

In traditional basic science and clinical research, the individuals who contribute to the final product broadly fall into one of the following categories: principal investigator, coinvestigators, biostatisticians, trainees such as postdoctoral fellows and students and others (eg, research personnel). One could argue that authorship is familiar to these individuals and also an expected outcome of their efforts. In QI and implementation research, this is not always the case; not all members of the team have an intrinsic interest in or expectation of scholarship. In the scenario above, consider the intensive care unit nurse practitioner and the pharmacist who led the evidence review that informed the clinical pathway. The nurse practitioner had no scientific writing or publication experience, while the pharmacist coauthored a research abstract over a decade ago as part of a small but mandatory component of their training programme. Despite the potential absence of a professional publication imperative for these and similar individuals, in an inclusive working and learning environment, we would provide equal opportunities for all who contributed.

Publications with multiple authors are common in biomedical journals which affords us the opportunity to practice a more inclusive approach to authorship for QI and implementation research. There are numerous benefits to this approach. First, team members will be given opportunities to contribute to the spectrum of research activities ranging from research ethics approval to target journal selection and writing for publication. This could lead to improvements in writing and editing skills, and for some, a newly discovered interest in scientific inquiry. Second, the recognition could lead to future opportunities for team members while the final product benefits from greater diversity of expertise and perspectives. Ultimately, by practicing authorship inclusivity, the principal and senior investigators demonstrate leadership and an exemplary model of collaboration and cohesiveness in the improvement and implementation research process from project initiation to completion and scholarship.

Given the issues raised above, we suggest the following practical strategies to translate what is argued by Philips *et al* into practice and to promote more inclusivity in QI and implementation research and scholarship:

1. Invite and encourage authorship. Often, writing papers is viewed as extraneous work performed by scientists or academicians. Publication of findings can be framed as a natural end-product of improvement and implementation science. Dispelling myths (eg, that ‘only scientists write papers’) and offering to guide a colleague through the process can promote inclusivity and remove barriers to authorship. The ICMJE criteria for authorship should be used as a guide in these conversations.² When considering author invitations, we caution against inappropriate (ie, honorary or ghost) authorship activities.³ Setting clear expectations on the roles and responsibilities of an author promotes accountability and integrity in the publication process.
2. Avoid making assumptions. Do not assume which team members wish (or do not wish) to participate as an author. Unconscious biases will result in exclusion of certain people or groups. Instead, ensure that those who have contributed to the work are given authorship opportunities.
3. Consider contributorship. Team members who decline authorship or who do not meet authorship criteria may be acknowledged as contributors. The Contributor Roles Taxonomy (‘CRediT’) uses a set of standardised criteria to define contributor roles.⁴ Listing individuals in an acknowledgement at the end of a publication is another way to recognise contributions. As an example, as part of an improvement initiative to reduce paediatric central line-associated bloodstream infections (CLABSI), families were given cards explaining the elements of the intervention bundle and what can be done to prevent CLABSI in their child.⁵ Given their direct involvement in the project, patients and families were appropriately acknowledged as contributors to the study.
4. Reflect on alternative ways to acknowledge contributions. Publications are just one way to share the findings from an improvement or implementation project. There are other outputs related to QI and implementation research that present an opportunity to practice inclusivity and may be appropriate as an alternative to—or in addition to—authorship of a publication. Such outputs include scientific meeting abstracts, ‘white papers’, blogs, websites, internal or external oral presentations or internal documents such as policies or newsletters. Each of these will give public credit to those who contributed, and if desired, can be included on a resume and promote professional development.

Inclusion, defined broadly in a workplace environment, refers to the behaviours and social norms that make people feel welcome. In the case of QI and implementation research, this means including those individuals necessary to ensure successful healthcare delivery system outcomes and providing the opportunity for these team members to contribute to the publication or another output that may be meaningful to them. When all team members are given the opportunity to participate in scholarship, it acknowledges their contributions and fosters inclusion while

honestly reflecting the breadth of expertise required for improvement and implementation research. The reality is that the lead quality improver or implementation researcher and/or their senior mentor ultimately opens or closes the door to authorship opportunities. As is increasingly recognised in many other aspects of medicine, systemic or unconscious biases can easily permeate and influence these decisions. Further, there are societal and gender expectations about behaviour that can influence one's ability to self-advocate and prevent potential authors from stepping forward to claim recognition.⁶ The renewed attention to the issue of authorship offered by Philips and colleagues is an opportunity for the improvement and implementation research community to elevate the topic of inclusivity and recognise the contributions of all members of our improvement teams.

Author affiliations

¹Department of Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

²Center for Healthcare Improvement and Patient Safety, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

³Department of Anesthesiology and Critical Care, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

⁴Department of Biostatistics, Epidemiology, and Informatics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

⁵Division of General Internal Medicine, Sinai Health, University of Toronto, Toronto, Ontario, Canada

⁶Institute of Health Policy Management and Evaluation, University of Toronto, Toronto, Ontario, Canada

⁷Center for Quality Improvement and Patient Safety, University of Toronto, Toronto, Ontario, Canada

Twitter Christine Soong @christinesoong

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Commissioned; internally peer reviewed.

ORCID iDs

Jennifer S Myers <http://orcid.org/0000-0002-3450-9572>

Christine Soong <http://orcid.org/0000-0002-1397-9671>

REFERENCES

- 1 Philips K, Rinke ML, Cowan E. Approach to authorship for quality improvement and implementation research. *BMJ Qual Saf* 2021. doi:10.1136/bmjqs-2020-011786. [Epub ahead of print: 12 Apr 2021].
- 2 International Committee of medical Journal editors. uniform requirements for manuscripts submitted to biomedical Journal. *N Engl J Med* 1997;336:309–15.
- 3 Wislar JS, Flanagin A, Fontanarosa PB, *et al*. Honorary and ghost authorship in high impact biomedical journals: a cross sectional survey. *BMJ* 2011;343:d6128.
- 4 Brand A, Allen L, Altman M, *et al*. Beyond authorship: attribution, contribution, collaboration, and credit. *Learned Publishing* 2015;28:151–5.
- 5 Kamily R, Grella M, Kim ML, *et al*. From kamishibai card to key card: a family-targeted quality improvement initiative to reduce paediatric central line-associated bloodstream infections. *BMJ Qual Saf* 2021;30:72–81.
- 6 Jaggi R, Guancial EA, Worobey CC, *et al*. The "gender gap" in authorship of academic medical literature--a 35-year perspective. *N Engl J Med* 2006;355:281–7.