Authorship in medical education
Paternité dans l'éducation médical

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At the CMEJ, we typically see lists of authors with two to five or six names. Within the last six months, several articles that crossed my desk caught my eye for the unusually large author groups. This was a catalyst for a larger reflection and discussion at a meeting of the CMEJ Editorial Advisory Board.

Even these longer-than-normal lists are dwarfed in comparison to a physics paper with a record 5,154 authors.[1] The publishing practices in physics are not the same as those in medical education (but I hope you appreciate that little bit of trivia). Scholarship in medical education intersects in many ways with that of health, medicine, and biomedicine. Some of the same people engage in research in multiple worlds. The practices and policies of other fields spill over into medical education which is more like that of education and other social sciences perhaps leading to larger author lists. Yet even in the biomedical sciences we see author list inflation and calls for caution: "… preserving authorship as a trustable indicator of scientific performance is critical."[2]

I know the issue of who gets to be an author can be contentious from personal experience and from the literature.[3] Over my many years of producing medical education scholarship, authorship has been an issue at times. Mostly, the discussions were among my author group regarding the order of authors. Rarely did we talk about who should and should not be considered an author. When necessary, we have used the acknowledgements section to recognize individuals who, for example, performed some statistical analysis or administrative work but did not participate in the conceptual design or writing of the paper. Some authors inevitably did more work than others, and different authors contributed in different ways. That is to be expected. But when, as an editor, I encountered lists of 10 or more authors, I paused to consider the situation.

At the CMEJ, our policy and practices follow the International Committee of Medical Journal Editors (ICMJE). We require authors to attest that they meet the ICMJE's established and respected criteria for authorship and that the lead author confirms that all authors meet these criteria.

It is an important responsibility for each author, and especially the lead author. They state:

> *The ICMJE recommends that authorship be based on the following 4 criteria:*
>
> - *Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND*
>
> - *Drafting the work or reviewing it critically for important intellectual content; AND*
>
> - *Final approval of the version to be published; AND*
>
> - *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.*
>
> *In addition to being accountable for the parts of the work done, an author should be able to identify which co-authors are responsible for specific other parts of*

the work. In addition, authors should have confidence in the integrity of the contributions of their co-authors.[4]

These are reflected in our attestation form. See below.

There are good reasons to be accurate and honest about authorship. Credit should be truthfully attributed to those and only those who made substantial contributions to the research and writing of the article. The integrity and trustworthiness of scholarly records may be called into question if honorary or guest authors[5] populate the lists of authentic authors. Instances have been reported where senior academics were listed without their permission and where authors were even fabricated.[6]

CMEJ Author Attestation Form

Author Attestation Form

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Consistent with the **"Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals,"** from the ICMJE, **each author must attest to the following four criteria.**
1. I have made substantial contributions to:
☐ the conception or design of the work; OR
☐ the acquisition, analysis, or interpretation of data for the work; AND
2. ☐ I have drafted the work or revised it critically for important intellectual content; AND
3. ☐ I have approved the final version of this paper; AND
4. ☐ I 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.

MANDATORY FOR CORRESPONDING AUTHOR.
5. ☐ I guarantee that all and only those individuals who meet the Journal's authorship criteria are included as authors of this paper.
6. ☐ This material (or similar/substantial parts of this material) is not under consideration - and will not be submitted to - any other journal/publication before its appearance in the Canadian Medical Education Journal.

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☐ I have included any Conflicts of Interest or Funding on the Title Page.

If published, your paper will include the following statement:
All authors have each signed their own attestation statement that they meet the requirements of authors. The lead author, in addition to their own attestation as an author, has signed an attestation that all authors listed on this paper meet the requirements for authors.

Since the listed authors are responsible for the content and ethical standards of the work they submit, accurate author lists help ensure accountability and transparency. For complex multi-site and multi-year research projects, more authors are needed and encouraged. At the CMEJ we wonder when a relatively straightforward study comes with a long list of authors. With expanded author lists, the value of authorship diminishes in the same way that the value of money decreases when governments simply print more. This reduction in value is particularly punishing for academics who are awarded tenure and promotion based on authorship and scholarly production. Being on a paper with 10 or more authors may signal to tenure and promotion committees that each author contributed less. Those committees may also expect more publication and raise their standards. The importance of their name on an author list should not be diluted. Disputes arising over

intellectual property and recognition could be complicated considerably with honorary and guest authors. Finally, adhering to the ICMJE recommendations supports compliance with journal and institutional policies on authorship, guards against unethical authorship practices thereby protecting the reputation of both the authors and their affiliated institutions. There are several compelling reasons for guarding the integrity of authorship in medical education scholarship.

While I have mostly discussed the issue of listing too many authors, we should not lose sight of including those who have made important contributions. It is possible that these people were not given an opportunity to write parts of the paper and review the final manuscript, either by oversight, neglect, or malice.[3]

We need to get this right. The CMEJ will do its part and we are confident that the medical education community will do theirs.

We trust the lists of authors on the papers that make up our newest issue! Enjoy!

Original Research

[Motivations to conduct research and burnout in medical education: a mixed methods study of students and residents](#) by Box and co-authors examined how medical trainees' motivations for doing research related to burnout.[7] They found that those who were more intrinsically motivated experienced less burnout, especially when strong relational and academic environments supported them.

[From passion to practice: clinician teachers' insights on family medicine obstetrical care](#) by Sabrina Kolker and team explored why family medicine doctors continue to practice family medicine obstetrics (FM-OB) and how to attract more to the field.[8] Their results highlighted the importance of early learning, role models, and work-life balance in keeping doctors in this field.

Brief Reports

[Telehealth clinical learning: understanding pre-clerkship medical student experiences](#) by Anand and Wood explored medical students' challenges (such as limited patient rapport) and benefits (such as improved note-taking) with telehealth during early clinical training.[9] The authors concluded that telehealth training should be integrated with in-person learning and supported by other active learning methods.

Assessing the impact of virtual learning on family medicine trainees' medical knowledge using progress tests: a retrospective cohort study by Prucnal and authors studied whether virtual learning affected how much family medicine residents learned.[10] Using test scores from 2020 to 2022, they compared residents who learned online with those who learned in person. They found no difference in overall scores, indicating that virtual learning did not negatively impact medical knowledge.

Scientific Reports

Formative rather than performative: enduring impact of an alternate pathway (QuARMS) to medicine, as outlined by Spencer and Phillips, involves a shortened medical training program.[11] Their survey found that participants felt well-prepared for medical school and valued the accelerated path and academic flexibility.

Reviews, Theoretical Papers, and Meta-Analyses

Simulation models in direct ophthalmoscopy education: a systematic review by Dutt et al. found that physical, digital, and virtual reality models all allowed students to repeatedly practice ophthalmology without causing patient discomfort.[12] Although limited realism remains a key challenge, the authors suggested that advancing technology will likely improve simulation effectiveness.

Ariel Lefkowitz and co-authors wrote a theoretical piece, Disagreeing respectfully: embracing complexity facilitates civil discourse in response to the increasing polarization in medicine.[13] They contended that embracing complexity is key to fostering civil discourse and understanding diverse perspectives.

Black Ice

Six ways to get a grip on co-creating curriculum with patients by Graves and team discuss the increasing importance of patient engagement in medical education.[14] Drawing from their experiences co-creating educational curricula with patients and healthcare professionals, they offered six recommendations for others interested in similar partnerships.

Bell et al. wrote Five ways to get a grip by incorporating trust into the design and implementation of peer coaching programs.[15] They underscored the importance of trust in peer coaching and presented tips for helping faculty developers to incorporate it into their programs.

You Should Try This!

Clinical skills boot camp in a program to train healthcare professionals to provide primary care to underserved communities by Wu et al. described the evaluation of a virtual clinical skills boot camp for students in an interdisciplinary program.[16] The boot camp was designed to train primary healthcare professionals to serve underserved communities.

Labonté et al.'s French article Point-of-Care Ultrasound training for family medicine residents presented a targeted point-of-care ultrasound (POCUS) training program designed for family medicine residents to address the gap in standardized ultrasound education within family medicine residency programs.[17]

"In-the-moment" feedback: a novel app for clinical teaching evaluations by Halani and team described their pilot study of a web app designed to help medical educators get feedback on their teaching.[18] After testing the app for eight weeks, most participants reported that it helped them record previously undocumented teaching and made it easier to obtain real-time feedback.

Commentary and Opinions

Revealing the blind spots: five key challenges for advancing physician wellness by Adam Neufeld examines the critical issue of physician wellness, highlighting key challenges such as inconsistent definitions, individual-focused interventions, and fragmented approaches.[19]

Empathic action: the practice of compassionate care by Ross and Kam commented on the importance of empathy backed by action to build strong and trusting physician-patient relationships.[20]

Sadeghighazichaki's commentary, Choosing wisely in medical education: bridging the gap between clinical care and managerial mindsets, explores the importance of choosing wisely education for promoting resource stewardship in medical curricula, and maintains that choosing wisely education is foundational for navigating today's complex healthcare systems.[21]

Fox and McLaughlin's The learner voice in medical education research: no study about us without us! contends that quality improvement and research in medical education must include learners' own perceived and expressed needs, not just educator-identified gaps.[22]

Dunn and Sibbald's reflection, Beyond competence: navigating identity and growth in the transition to residency, describes the experience of a new resident struggling with confidence despite increased competence.[23]

Letters to the Editor

"Against research": reflections from a life-long journey in basic science, clinical medicine, and medical education by Matsubara responded to D'Eon's Editorial that contended that medical education research must stay connected to practice.[24,25] Matsubara added that education research should always build on prior knowledge and aim to improve real-world teaching.

In Motivations to conduct research and burnout in medical education: some different viewpoints, Matsubara responded to Box et al.'s previously published study on burnout.[7,26] Matsubara contended that if the extrinsic motivation atmosphere is what causes burnout, we should work to stop it

Bioethics as a cornerstone: assessing and modifying the hidden curriculum in medical education by Culcay Delgado commends Li et al.'s article on the hidden curriculum but notes that it excludes non-English research.[27,28] They share insights from Latin America, and highlight bioethics as key to changing the hidden curriculum

Reflections on the value of near-peer teaching in anatomy education by Garcia Coello responded to Moussa's article, Near-peer mentorship as a welcome ritual: exploring the what and how of McGill's "Buddy program."[29,30] The author affirmed the use of near-peer teaching in anatomy as a valuable supplement to traditional anatomy instruction, reinforcing knowledge in a comfortable learning environment.
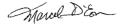
Works-in-Progress

Building pedagogical models of social accountability in family medicine residency training: a logic analysis protocol by Massé and team outlined their proposed research plan for examining how the concept of *social accountability* can be built into family medicine residency training with the aim of helping family physicians meet the health needs of communities.[31]

Moniz and team's The role of professional culture in teacher identity formation: an ethnographic window onto becoming a clinical teacher outlined their study, which will use ethnography to explore how different levels of culture and socialization shape how healthcare professionals see themselves as teachers.[32]

Conferences

We also published the Royal College of Physicians and Surgeons of Canada abstracts for the 2025 International Conference on Residency Education, Trust, growth, and connection: the path forward in residency education.[33]

Enjoy!

[signature]

Marcel D'Eon
CMEJ Editor-in-Chief
With valuable contributions by Christina St-Onge (Deputy Editor) and Marco Zaccagnini (Senior Section Editor)
Cover design: Word cloud created by the Canadian Medical Education Journal editorial team using keywords from the articles in this issue. Generated with WordArt.com.

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