Additional Resources for Authorship

This document is intended to complement the *Harvard Faculty of Medicine Authorship Guidelines* and provides a set of practices that can be used to address authorship issues and ensure the appropriate acknowledgment of individual contributions in work products. In practice, various factors and field conventions may lead to some deviation from the best practices outlined in this document, particularly with respect to authorship order. Consideration of special circumstances and competing interests within author groups should be acknowledged and discussed. Examples of such contexts:

- contributions of data scientists or computational specialists in team science projects
- equitable practices for crediting international colleagues in global capacity-building projects
- facilitating career growth toward independence for earlier career members within an author group

Most authorship disputes can be avoided or resolved by having open and honest discussions about participant responsibilities and contributions before a project commences and periodically as work progresses and/or substantially changes. In particular, mentor-mentee disputes can introduce additional power dynamics, and mentors bear responsibility for modeling transparent processes, ensuring mentees' contributions are fairly recognized, and seeking neutral guidance when conflicts arise. Contribution statements and authorship agreements—explained in more detail below—can be useful tools to facilitate all discussions.

ORDER OF AUTHORSHIP AND MAJOR AUTHORSHIP

Many approaches to determining authorship order exist across disciplines and research groups. Manuscripts in the biomedical sciences often list authors in descending order of contribution, placing the person who took the lead in writing the manuscript or conducting the research first, and the most experienced contributor last. However, practices may vary across disciplines and/or manuscript types. For instance, in physics, mathematics, and economics, the convention is alphabetical. Authors may also be listed in random order for commentaries or reviews. While the significance of an author position may be understood in a given setting, order of authorship has no universally agreed upon meaning across disciplines.

1. Decisions about the authorship order should be made as early as possible, even at the outset of a project. In addition, relative contributions should be reassessed periodically, especially if the scope of the work or individual roles change.

2. The authors should decide the order of authorship together; however, the primary and/or senior author(s) associated with a given project should anticipate possible disagreements concerning authorship credit and is/are responsible for proactive conversations with trainees and collaborators. Shifts in authorship order should be discussed with and determined by the primary/senior author rather than being arranged among co-authors.

3. Equal contribution designations can be used to indicate that authors in certain positions on the byline, typically first or last, contributed equally. The criteria for, and/or feasibility of,

4. designating equal contributor roles vary by journal, and typically requires clear justification for how the authors carried out equivalent amounts of intellectual contribution. The decision to use equal contribution designations should be the product of ongoing conversations among team members and should be guided by the tangible contributions of each author. It is important to always indicate—using superscript symbols or equivalent designation—all co-first and co-senior author contributors in the order as they appear in the publication in any written citation of the work, including in CVs, presentations, and other materials.

5. As a recommended best practice, authors should compose a contribution statement to describe their contributions and help discern the value of those contributions, from inception to publication. A clear and concise contribution statement helps to ensure that all authors are properly recognized for their work on a project, especially on a large project that has many authors, is multi-disciplinary, and/or is performed at different locations or institutions. CRediT (Contributor Roles Taxonomy) offers standardized language for different types of contributions. Contribution statements may be submitted to journals during the publication process, and/or can be used for administrative purposes, such as when communicating to granting agencies or other stakeholders.

6. Expectations for corresponding author(s) vary across fields, and authors should refer to guidelines issued by the journal. Some journals regard the corresponding author as the guarantor for the work, whereas others view the role as more administrative. In many but not all cases, one or more lead authors will serve as corresponding authors.

A written authorship agreement can be another useful informal tool to minimize authorship disputes and authorship abuse. This type of internal documentation verifies that each author meets the criteria for authorship, agrees with the contributions attributed to their name, and accepts responsibility for the work product. If an authorship agreement is used, all authors of the work product should participate in the agreement. An authorship agreement does not need to be formal or complicated; responses by all authors to a simple email message from the primary author can be sufficient in many circumstances.

DISPUTE RESOLUTION

Conflicts related to authorship may arise at any time during the research or scholarly process, resulting from differing perceptions of one's contributions and resulting attribution of credit. Disputes over authorship are best settled at the local level by the authors themselves, or by the principal investigator. It is expected that the resolution of disputes among collaborators will occur through open and collegial discourse, and mutual agreement is strongly encouraged.

To facilitate this process, any prior decisions or discussions among authors, including verbal or written agreements between coauthors, should be reviewed and considered. The *Harvard Faculty of Medicine Authorship Guidelines* should be applied in combination with any documented customary practices in the relevant discipline, as appropriate. The authors can use the *Authorship Discussion Tool* below to guide authors through a robust series of questions that can be jointly discussed by the authors in an effort to resolve the dispute.

If the dispute cannot be resolved among the authors, it is generally the responsibility of the Department Chair or their designee to take the lead in reaching a resolution of the dispute, assuming they are not a direct party to the dispute and do not have a conflict of interest. If rigorous, good-faith efforts to resolve the dispute utilizing the *Authorship Discussion Tool* are unsuccessful, potential resources to reach out to next may include their institution's Research Compliance office, the Vice President of Research, or the Chief Academic Officer for further consideration. Parties may also seek confidential help through formally designated peer advisors or the Harvard Ombuds Office in Longwood for a variety of dispute resolution services including coaching for a difficult conversation, 1:1 or group facilitation or the design of an arbitration process. For multi-institutional projects, the overall PI, the chair of the consortium, or other recognized authority may be the best arbiters. Should an authorship dispute arise that includes a question of the veracity of underlying data supporting a manuscript or the misappropriation of the work of others, consultation with the HMS Office for Academic and Research Integrity or a third-party scientific arbitrator may be helpful to support resolution.

SELECTING REPUTABLE JOURNALS FOR PUBLICATION

Harvard University supports and encourages open access publishing through the Digital Access to Scholarship at Harvard (DASH) repository and other programs administered through the Office of Scholarly Communication. Authors are responsible for complying with applicable open access policies but should avoid submitting manuscripts to journals that do not conform to standards of ethical publishing. Although there is no way to definitively identify a "predatory" journal, authors should carefully evaluate open access journals if the publisher does not belong to the Open Access Scholarly Publishing Association and the journal is not indexed in the Directory of Open Access Journals. Journals that are not indexed may be appropriate venues for publication provided that they conform to the standards and best practices established by these organizations.

Think.Check.Submit is an initiative that provides guidance for identifying potentially predatory publishers and journals.

COLLABORATIVE APPROACHES TO IMPLEMENTATION OF AUTHORSHIP PRACTICES

Implementation of authorship best practices should include a commitment to collegiality, open communication, and expectation-setting throughout the research and scholarly process as well as the following considerations:

1. Writing groups should discuss authorship credit/criteria, presentation of joint work, and future direction of the work as early as practical, frequently during the course of their work, and as team members begin or end their involvement. The Principal Investigator (PI) should initiate these discussions, although any collaborator should feel free to raise questions or seek clarity throughout the course of the collaboration. Discussions should include whether collaborators are permitted to publish a portion of the project on their own, particularly if it involves continuing to use resources that belong to the PI. Each lab or group may consider having a written document in place as guidance.

2. All members of the research team are expected to adhere to good laboratory practices including maintaining an accurate laboratory notebook and annotating electronic files, as these practices will aide in identifying and clarifying individuals' contributions to a project.

3. Disposition of collaborative data and research materials should be mutually agreed upon among collaborators as early as practical and in accordance with any data-sharing and retention requirements.

4. Laboratories, departments, centers, and programs supporting scholarly work should have these best practices available, together with a description of their discipline-specific processes for determining who should be an author and how those authors should be ordered. These best practices should be included in the orientation materials for new research team members.

ARTIFICIAL INTELLIGENCE IN PUBLISHING

Recent technological innovations in generative artificial intelligence (AI) tools, such as ChatGPT, have prompted the need for assistance on how such tools might be incorporated and attributed in scholarly works. Authors should stay abreast of authoritative guidance from the International Committee of Medical Journal Editors (ICMJE), World Association of Medical Editors, Committee on Publication Ethics, and leading journals in the field. Recognizing that such recommendations will continue to evolve, current best practices are as follows:

- **An AI tool cannot be listed as an author on manuscripts**, as it cannot meet many of the requirements for authorship, including understanding the role of authors, taking responsibility for the content, or offering final approval of the manuscript.

- **Authors should be transparent when AI tools are used and provide information about how they were used,** in the appropriate manuscript sections**.** For instance, using AI for writing, editing, or proofreading should be disclosed in the Acknowledgments sections whereas using AI for data analysis should be described in the Methods section. Full technical specifications (name, version, model, source) and method of application used (query structure, syntax) should be included, as in:

  "ChatGPT (OpenAI, GPT-5.1) was used to generate example text illustrating recommended AI attribution in scientific writing. The prompt included: 'Provide an example of how AI tools should be referenced in scientific writing.' Output was reviewed, revised, and verified by the authors for accuracy and alignment with publication standards."

- **Authors are ultimately responsible for the accuracy of any work generated by an AI tool, as well as appropriate attribution of any material produced by the tool, including quotations.** Unacceptable uses include generating novel scientific interpretations or replacing human oversight in data analysis. Authors must seek and cite sources that support the AI tool's statements, as well as review sources that present counterviews, as such references may be omitted by the chatbot.

REFERENCES

1. Contributor Roles (CRediT) Taxonomy https://credit.niso.org/.

2. Sample Contract with Authorship Language from the NIH.

3. Directory of Open Access Journals (DOAJ) https://www.doaj.org/.

4. Open Access Scholarly Publishing Association https://oaspa.org/.

5. Think.Check.Submit. https://thinkchecksubmit.org.

6. International Committee of Medical Journal Editors, section on Artificial Intelligence (AI)-Assisted Technology https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html#four

7. Suchikova Y, Tsybuliak N, Teixeira da Silva JA, Nazarovets S. GAIDeT (Generative AI Delegation Taxonomy): A taxonomy for humans to delegate tasks to generative artificial intelligence in scientific research and publishing. Account Res. 2025 Aug 8:1-27.

8. Zielinski C, Winker M, Aggarwal R, Ferris L, Heinemann M, Lapena JF, Pai S, Ing E, Citrome L, on behalf of the WAME Board. Chatbots, ChatGPT, and Scholarly Manuscripts. World Association of Medical Editors (WAME). May 31, 2023.

9. Committee on Publication Ethics position. https://publicationethics.org/guidance/cope-position/authorship-and-ai-tools.

10. Artificial Intelligence for Research and Scholarship. https://guides.library.harvard.edu/c.php?g=1330621&p=10046069.

11. The Authorship Project. https://www.authorshipproject.org/. University of North Carolina in Charlotte.

Addendum: Authorship Discussion Tool

This tool is intended to provide questions that will help facilitate dispute discussions among team members to ensure the right information is documented and considered prior to mediation.

- Who should be involved in the conversation?
- What is the nature of the authorship dispute?
- What is the current stage of the research/scholarly work? (e.g., protocol design, data collection, data analysis, preparing the manuscript, manuscript has been submitted)
- What agreements/discussions have occurred to date on the assignment of authorship and attribution of credit on this project?
- What are the roles of those who worked on this project (whether or not they are currently described as an author)? (Refer to the CRediT Taxonomy for specifying roles.)
- Who among this list meets the criteria for authorship?
- What efforts have been undertaken to resolve this matter?