

Biostatistics Authorship Policy

Collaborating statisticians qualify for authorship on manuscripts and abstracts by meeting the criteria set forth below, which is derived from the *Journal of the American Medical Association's* Authorship Criteria and Contributions Policy, and the International Council of Medical Journal Editors Requirements (*Annals of Internal Medicine* 1977; 126: 36-47).

1. The statistician(s) develop and take responsibility for the statistical analysis and reporting of results OR the statisticians(s) contribute substantially to the conception and design of the research project (e.g., developing the analysis plan is a substantial contribution to the study design).
2. The statistician(s) participate in drafting the manuscript/abstract (e.g., prepare the section on statistical considerations) or critically revise it for important intellectual content (e.g., interpretation of results, description of analysis procedures).
3. The statistician(s) assume responsibility for the integrity of the statistical analysis and its scientific interpretation.
4. The statistician(s) approve the final version of the manuscript/abstract and all statistical summaries (including tables and figures) in the manuscript/abstract.

Accordingly, authorship is not determined solely by the fact that time was invested on a project. Rather, the collaborating statistician(s) must have (1) made an intellectual contribution through either the statistical analysis, the interpretation of results, or the design/conception of the research project (e.g., specified the analysis plan) AND (2) contributed to the manuscript and approved its final version.

Acknowledgements

Collaborating statisticians may not be listed under *acknowledgements*. An exception to this policy may be granted for projects that do not require an intellectual or scientific contribution from the collaborating statistician(s), e.g., the statistical report contains only tabulations, means, medians, and quantiles but no analysis or graphs. However, such exceptions are rare in practice.

Authorship Assignment and Order

Collaborating statisticians work as a team on projects. The standard and most prevalent configuration is a team that consists of one faculty statistician and one staff statistician. If both the faculty and staff statistician meet the authorship criteria detailed above, then both statisticians should be assigned authorship. Typically each statistician contributes something different to the collaboration and separate recognition is appropriate. However, faculty statisticians may determine that only a single statistical authorship is warranted. Such decisions are made on a case-by-case basis.

Authorship order should be discussed prior to the initiation of the collaboration. The order tends to vary and often depends upon the specific contributions of the collaborating statistician(s). For example, it is customary for faculty statisticians who have participated in the design, analysis, conduct, and manuscript preparation of a clinical trial to be listed as second author. For studies requiring an intensive or high-end statistical analysis, it is also customary to list the faculty statistician(s) among the first three authors. Staff statisticians are typically listed as middle authors.

Usage of Statistical Reports

Graphs, tables, and text from statistical reports may not be used in a publishable forum (e.g., manuscript, abstract, poster, or website) without the permission of the collaborating statistician(s).

Payment and Authorship

Payment is never accepted in lieu of authorship. Authorship is determined by intellectual and scientific contributions as described earlier. Payment allows the collaborating statistician(s) to engage a project in accordance with NIH and Vanderbilt University guidelines for effort reporting.

Addendum

The addendum to this policy contains examples and implications of the JAMA and ICMJE authorship criteria for non-statistical authors.

Addendum to Biostatistics Authorship Policy

Examples of scientific and substantial intellectual contributions

1. Scientific contributions when helping to design a research project.
2. Developing an analysis plan for the research project.
3. Developing new statistical methods to meet the project's needs, or by combining existing techniques in a novel way.
4. Providing a statistical analysis along and/or the interpretation of results.
5. Preparing a section on statistical considerations for the manuscript/abstract and revising the entire manuscript for statistical integrity and completeness.
6. Critiquing an initial draft of a manuscript/abstract and spending considerable effort in revising the document by suggesting alternative scientific wording, alternative presentation of results, and alternative analysis that should be completed (if any).
7. Providing careful review of a manuscript/abstract that entails reviewing tables, summary statistics, and other numbers in the text for errors and assessing the methods and results sections for accuracy and appropriateness.

Miscellanea

Both the JAMA and ICMJE authorship criteria require that

1. At least one author must be able to take responsibility for the statistical analysis and its integrity.
2. Participation solely in the acquisition of funding or the collection of data does not justify authorship.
3. General supervision of a research group (i.e., fellows, residents, labs) is not sufficient for authorship.
4. Credit for contributions of individuals not meeting the authorship criteria (such as those responsible for general supervision) should be recognized as an acknowledgment.
5. Editing the manuscript or abstract for grammar is not a contribution warranting authorship.