

# Ethics in publication

## Authors

Michael B. Wallace<sup>1, \*</sup>, Peter D. Siersema<sup>2, \*</sup>

## Institutions

<sup>1</sup> Mayo Clinic, Jacksonville, Florida, USA  
<sup>2</sup> University Medical Center Utrecht, The Netherlands

## Bibliography

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## Corresponding author

**Prof. Peter D. Siersema**  
 University Medical Center  
 Utrecht  
 P.O. Box 85500  
 3508 GA Utrecht  
 The Netherlands  
 Fax: 31-30-2505533  
 p.d.siersema@umcutrecht.nl

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Publication of scientific manuscripts remains our core method of sharing knowledge and advanced scientific inquiry. Pressures to publish for reasons other than pure discovery have the potential to corrupt this process. The core principles of scientific ethics outlined above provide guidance on

how to maintain the integrity of our scientific process. We, as journal editors, are committed to the advancement of scientific knowledge and the ethical process of publication. We do the best we can to make sure that the articles we publish fulfill all the criteria of a well-conducted study.

## Abbreviations

▼  
 COPE Committee on Publication Ethics  
 ICMJE International Committee of Medical Journal Editors

## Overview

▼  
 The opportunity has never been greater for publishing scientific articles in traditional and open-access journals. The pressure to publish is intense with increasing competition for research resources and rewards for academic promotion. At the same time, the ability to search the web for big data provides powerful tools to compare new manuscripts with articles already published. In these times, it is increasingly important to ensure that scientific publication preserves its core values, to share new knowledge and ideas for the betterment of the patients in our care and the understanding of disease.

The pressure to publish has always led to rare examples of scientific misconduct. Many of us, including the present authors, are pushed to produce manuscripts on a regular basis and often write multiple review articles or book chapters on the same topic of our expertise. In this article, we will make clear the expectation of our scientific journals with regard to ethical issues in publication, in particular plagiarism, duplicate publication, data falsification, and authorship misrepresentation.

Fortunately, these events appear to be rare, and we hope that this remains the case.

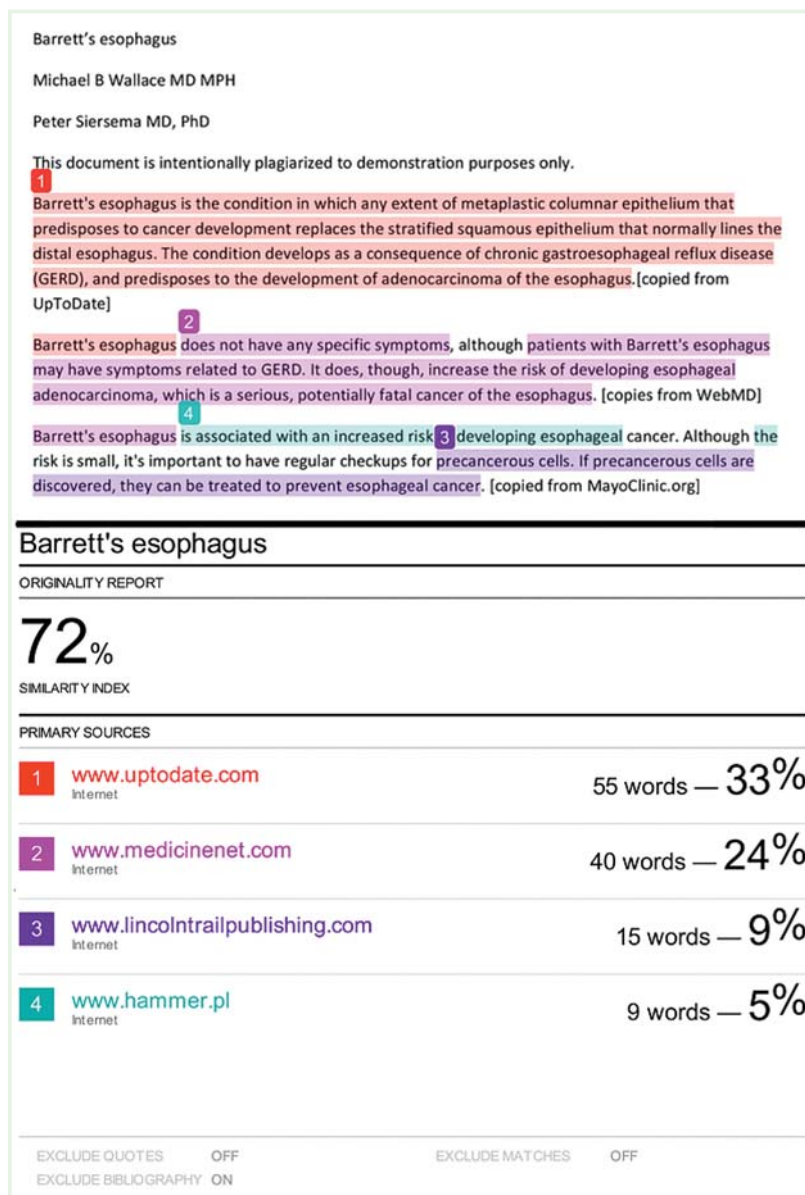
## Current guidelines

▼  
 Issues of scientific misconduct, and particularly issues of publication ethics, are addressed by the International Committee of Medical Journal Editors (ICMJE, [www.icmje.org](http://www.icmje.org)) and the Committee on Publication Ethics (COPE, [www.publicationethics.org](http://www.publicationethics.org)) to which our journals subscribe. Both groups provide valuable definitions and management algorithms for issues ranging from plagiarism and authorship disputes to data falsification. To avoid personal bias and misunderstanding, both groups provide clear guidelines and flowcharts on how to address each issue, with appropriate latitude for interpretation.

## Classical plagiarism

▼  
 Plagiarism is generally defined as “the act of using another person’s words or ideas without giving credit to that person.” [1]. Despite this seemingly clear definition, in practice it can be challenging to precisely determine what constitutes plagiarism. Clearly the direct replication of previously published work by another author without reference is indisputably plagiarism. However, reproduction of phrases and ideas is common, particularly in the methods section of an article where many studies attempt to replicate the methodology of previous work. The key principle is the state-

\* Both authors contributed equally to this work.



**Fig. 1** This figure demonstrates a typical output from plagiarism detection software, CrossCheck (<http://www.ithenticate.com/>). The document was intentionally plagiarized using text from the present authors' prior publications. Highlighted text indicated direct overlap with notation of the source.

ment "without giving credit." The examples below provide suggestions for how to avoid accusations of plagiarism.

- ▶ Direct replication of published work. This should be in quotation marks followed by a reference to that work.
- ▶ Paraphrasing published work in the current authors' own words. This should not use quotation marks but should clearly reference the previous work. (e.g., As reported by Smith et al, the endoscopic therapy of Barrett's esophagus has evolved ... [reference]).
- ▶ Restating methods that are replicated from other studies. It is appropriate, in fact encouraged, that scientific studies should attempt to replicate the work of others to ensure validity. In these settings, the original source should be referenced or directly quoted (if identical) (e.g., In our study, we used the methods previously described by Smith et al [reference] when performing the endoscopic procedure).

The reproduction of another individual's work without attribution is a clear violation of publication ethics. Although still relatively rare, this is increasingly recognized through software that broadly crosschecks publication with the existing massive body

of literature. This is especially common in review articles or in the background/introduction section of manuscripts.

### Detection of plagiarism

▼ Software that searches all published text is widely available and is routinely used by our journals to check for plagiarism. This is perhaps the most common issue of ethics review encountered in scientific publication. An example of a plagiarism report is shown in [Fig. 1](#). (Note: we artificially created a plagiarized document for demonstration purposes from one of our own publications.) The software highlights all areas of text overlap and indicates the percentage overlap and source.

### Text recycling or "Self plagiarism"

▼ Many authors, including ourselves, are often asked to write review articles or editorials on the same topic for many different journals or books. It is very challenging to rephrase the same ideas in differ-

ent words each time. The key principle is whether novel information is being provided in each publication. As suggested by COPE, "Action should be considered when text is recycled from an earlier publication without any further novel development of previously published opinions or ideas or when they are presented as novel without any reference to previous publications" [<http://publicationethics.org/text-recycling-guidelines>] [2].

Text recycling in the introduction or methods section is difficult to avoid. Reporting the general statistics of a disease (e.g., "Colorectal cancer is the third most common cause of death ...") is difficult to re-phrase and is generally acceptable but should always be referenced with up-to-date publications. Likewise, description of a common methodology that is used in a prior publication is necessary for consistency between studies (e.g., "Bowel preparation was described according to the ... scale") [reference]. Where detailed identical methodologies have been previously reported, it is preferred to simply reference those with a brief description so the reader does not have to access other manuscripts (e.g., "Colonoscopy was performed as previously reported by Smith et al [reference]. Briefly we ...").

Text recycling in the results and discussion should be avoided because these sections are clearly linked to the originality of the manuscript. Both sections should be written in original language with no more than common short phrases of overlap.

### Duplicate publication

Duplicate publication is a specific and more common type of misconduct in which the same scientific content is re-published in another article. Its most egregious form is the simple re-publication of the same scientific study in two different journals. We recently noted that some manuscripts submitted to our journals had already appeared in non-PubMed-cited online journals. More common is the publication of a simple update of an article with minimal novel scientific information, such as an ongoing cohort of patients with slightly higher numbers than in a previous publication. Again, the principle of novel, original data holds. The new study should present a new hypothesis and aim, or substantially greater statistical power to resolve a previous hypothesis. An issue related to duplicate publication is what is commonly referred to as "salami slicing" of information to get multiple articles from just one study; this is considered unethical as well. Studies should present as complete a picture as possible to address the hypothesis and aims of the author. Extreme subdivision of articles into smaller and smaller aims may weaken the impact of the paper and result in rejection.

Finally, multiple submissions to more than one journal are considered to be an ethical error. It is often a situation in which a person is so determined to publish quickly that he/she ignores the rule to submit to one journal at a time.

### Management of suspected text recycling, plagiarism, and duplicate publication

Detection of clear plagiarism or scientific misconduct requires retraction of an article. When such violations are suspected, often through software crosschecks, editors are obliged to address concerns with the corresponding author using the COPE guidelines. Typically, the editor will contact the author requesting an explanation of the suspect material. In the event that a simple over-

sight is identified and corrected, no further action is needed. In more egregious cases, editors are obliged to contact the other authors of the manuscript and institutional leaders such as a department chair or dean, which may have serious consequences. Thus, every effort should be made to prevent such issues. One very effective method is to simply perform a software crosscheck with one of many available products before submitting to a journal. Our journals use CrossCheck (<http://www.ithenticate.com/>). This is especially important when multiple authors have provided content to a manuscript. Ultimately the guarantor of the article is responsible for the scientific integrity, but violations can affect the reputation of all authors and institutions.

### Data fabrication

Data falsification can take many forms from overt to subtle. Clear-cut fabrication of results has no place in scientific literature. It can be difficult to identify and often is found only when co-authors or collaborators find serious questions about a manuscript and bring them to attention. In one case, a reviewer of a manuscript provided evidence that the data presented in no way could have been collected by the submitting authors. Journals must rely heavily on the honor system because they do not typically have direct access to primary data [3]. More subtle forms of data falsification include embellishment, selective publication of results, or even non-publication of results. Efforts to limit these include clinical trials registration, preferably at the outset of a study. The policy of the ICMJE, followed by our journals, is that all clinical trials should be registered, preferably before enrollment of the first patient. ICMJE defines a clinical trial as "any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes" [3]. (<http://www.icmje.org/about-icmje/faqs/clinical-trials-registration/>). Note that certain publishable studies, such as retrospective studies or the use of registry data, do not currently require registration.

Manipulation of figures is sometimes unethically done to support or strengthen a hypothesis. It is made easier with modern photo editing programs, but the same programs help us detect figure manipulation.

A more subtle issue occurs when, if an author discovers after publication an error that he/she made, he/she ignores it to avoid embarrassment or to just avoid the bother of correcting it. Instead, the author should always notify the editorial office and get an erratum attached to the article. Not doing so is also considered unethical. Authors have the responsibility to ensure that their published information is correct, to the best of their knowledge.

### Authorship

Authorship is one of the most commonly disputed and most contentious areas of scientific publication. Many academic medical centers base promotion and even salary on publication and authorship. To further escalate the tension, the order of authors connotes relative contribution and is used by many promotion and tenure committees to determine significant scientific contribution, typically for the first, second, or last authors only. These conditions provide incentives for misconduct.

The rules for authorship are clearly laid out by the ICMJE as follows.

- ▶ 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 revising 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 he or she has 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. All those designated as authors should meet all four criteria for authorship; all who meet the four criteria should be identified as authors. Those who do not meet all four criteria should be acknowledged" [4] [<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>].

Despite these seemingly clear rules, deviation is likely common. Deserving authors may be omitted, whereas senior department members may be included "automatically" without substantial contribution. Group publishing is especially common where all members of a particular team are included regardless of contribution.

As science is increasingly practiced by large teams, the need for multiple authors, often with highly specialized roles, is understandable. The ICMJE acknowledges this by suggesting that each author may not be able to take responsibility for the entire manuscript but should take responsibility for their specific role (e.g., the statistician for the statistical analysis or the research nurse for data collection). Ultimately, one author should take full responsibility for the article and designated to be the "guarantor" of the manuscript. Preferably, this author should also be the corresponding author. As a rule of thumb, imagine that a journal editor approaches you at a national meeting and asks for specific details about a particular paper. Ask yourself whether you or another author could knowledgeably describe the work. If not, you/they should not be included.

Inclusion of "ghost authors" such as industry-hired manuscript writers, who are not listed as authors, is also a significant concern. This situation has high potential for bias in the drafting of industry-sponsored studies and should be avoided.

The order of authors has traditionally reflected the degree of contribution. It is customary for the person who made the greatest contribution to be listed as first author. Often this is a junior colleague who performed much of the work. The last author may be the principal investigator or mentor, but not necessarily. Multiple "first" authors are now increasingly recognized. Many journals designate two (e.g. Endoscopy) or multiple (e.g. GIE) first authors with annotations such as an asterisk (\*) or boldface type, with notation on the title page that each contributed equally to the work [5].

The number of authors is highly variable. As long as each author meets ICMJE criteria, there is no absolute limit on the number of authors for original articles.

## Preventing and resolving authorship disputes

Authorship should be clearly spelled out at the planning phase of the study and documented in the study protocols to avoid difficult disputes. This is particularly important for the first author and last authors. The principal investigator of a study should take the lead in this effort. Disputes are harder to resolve at the time of manuscript submission or review. These are best handled locally by the authors and principal investigators. In the event that an issue cannot be resolved, authors should carefully consider involvement of a department/division chair or dean. It is beyond the capabilities of most journal editors to resolve authorship disputes. As such, inquiries to editors are often referred back to the corresponding author. If there is suspicion of misconduct, an editor may defer to a department head or dean at the principal institution.

## Conflicts of interest

Conflicts of interest may involve many individuals in the publication process including authors, reviewers, or editors. Conflicts may be financial, legal, scientific, or personal, including academic competition. If in doubt, authors should add the information to their disclosure. The Editor-in-Chief is ultimately responsible for deciding whether something is a conflict of interest. A summary of principles for conflict of interest management was published by Baillie et al [6] in 2006.

Michael B. Wallace MD MPH FASGE, Editor-in-Chief,

*Gastrointestinal Endoscopy*

Peter D. Siersema MD PhD, Editor-in-Chief, *Endoscopy*

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