

Reviewing Manuscripts: A Systematic Approach



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ABSTRACT

Peer-review of manuscripts submitted for publication in a scholarly journal is a cornerstone of the scientific process. Most scholars receive little or no training on how to conduct this key component of academic citizenship. This article provides guidance on a systematic approach to performing peer-review.

Key Words: Manuscripts, Medical as topic, Peer review/methods, Writing

Why Be a Reviewer?

Being asked to review a manuscript submitted to a scientific journal is an honor and a time-consuming endeavor for which one receives little recognition. So why do this? For early-career academic physicians, serving as a peer reviewer is an opportunity for professional development. The act of thinking critically about another investigator's research design and manuscript structure improves one's own research and writing skills. For experienced academic faculty, whose work has benefitted from the thoughtful input of other anonymous and unrecognized reviewers, participating in peer review is a pillar of academic citizenship. Additionally, peer review provides a mechanism for experienced investigators to engage in time-limited mentorship of younger researchers. Furthermore, reviewing for journals in your area of expertise is expected for academic promotion, might stimulate ideas for new projects, enables scholars to stay abreast of current and cutting-edge research, and allows researchers to help ensure the integrity of their field.

The Journey from Manuscript to Published Article

Submitted manuscripts are initially reviewed by the editor or an associate editor and a certain number are declined at this stage of the process ("desk review") without being sent out for additional peer review. This might occur because the editor immediately recognizes the manuscript as lacking sufficient scientific rigor or because the content is considered outside the scope of what the journal publishes or is otherwise unlikely to be of interest to its readership.

This process is respectful to reviewers, who aren't asked to review articles that will never make it into the journal, as well as to authors, who may then submit their work elsewhere without delay.

Manuscripts that the editor finds appropriate for further consideration are sent on to peer reviewers. The purpose of the peer review process is to identify concerns with the manuscript and strengthen the quality of the final published article. It can help identify flaws in the methods, a lack of clarity in the presentation of results, or unsupported conclusions. Peer review can also help identify ethical lapses such as plagiarism or fraud in the rare instances in which they occur. Reviewers are expected to respond rapidly to the request to participate, and to complete their review within a relatively short time frame, typically 2-3 weeks. Prompt responses from peer reviewers allow authors to revise and resubmit their work as quickly as possible.

Most reviews for medical journals are single-blinded; authors of the work are disclosed, but the reviewer remains anonymous. Because of the importance of peer review to the careers of authors, there has been substantial discussion among scholars, editors, and publishers about who, if anyone, in the process should be blinded, and whether reviews should be published.¹ Although some data suggest that concealing the authors' identities and institutions is feasible and improves the quality of reviews from the editors' perspective,² not all studies of blinding have had similar results, and this remains an area in which ongoing research is needed before consensus can be reached.³ One of the primary arguments against removing the names of submitting authors is that, because of the size of many academic circles, reviewers often can successfully deduce authorship. Conversely, although revealing the names of peer reviewers would add a level of accountability to the process, it could also make it difficult for journals to obtain objective reviews,⁴ particularly of the work of very prominent authors. It therefore is not common practice among medical journals.

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Approaching Peer Review

Before accepting an invitation to review a manuscript, think carefully to be sure it is in your area of expertise. Ensure that your schedule will permit you to complete it in the requested time frame, and clearly identify any associations that could pose real or perceived conflicts of interest.⁵ If you're uncertain whether to recuse yourself, contact the editor. Collaborating with a trainee or junior faculty member on a review is a good way to teach reviewing skills. However, permission should first be requested from the editor and the manuscript should only be shared after receiving approval. Remember that in most cases, if done correctly, involving a trainee or junior colleague might improve the quality of the review but is unlikely to save you time, because of the need to review and edit the mentee's review and give them feedback. Under no other circumstances should the contents of a manuscript under review be discussed with colleagues; it must be treated as a confidential document at all times.

Conducting a Peer Review

There are many valid approaches to conducting the peer review of a submitted manuscript. The one outlined in this article is on the basis of the experience of these and a number of other previously published authors.^{6–9}

Step 1: The Initial Reading

Read the article through from beginning to end, making notes to yourself on any items of concern, large and small. Try to read the manuscript straight through as you would a published article, starting with the abstract; make your notes just detailed enough that you will later be able to recall your thoughts. Not uncommonly, a point you think requires clarification is subsequently explicated appropriately by the authors. However, to enhance the readers' understanding, you might wish to recommend that the clarification be made earlier in the article. If not recorded on your first read, you are likely to forget the sense of confusion a reader might have in reading the article from beginning to end after publication. After this first read, it is generally advisable to set the article aside for a couple of days, allowing you a fresh perspective when you pick it back up.

Step 2: Reading the Article in Greater Detail

While rereading the manuscript, begin drafting more specific comments to include in your review. Overall, how important is the work being presented? Will it be of interest to the journal's primary audience? Is it an innovative study that moves the field forward? Does it further corroborate (or refute) findings previously reported in other studies? Is the manuscript generally well organized and clearly written? As you continue to read, organize your comments according to section (Table 1).

Title and Abstract

The title and abstract will be the only things viewed by many readers, including those who do not have access to

Table 1
Reviewing Manuscripts: Checklist of Elements to Consider

General
<input type="checkbox"/> Is the work original? Does it contribute new knowledge to the field?
<input type="checkbox"/> Is the subject matter of interest to the journal's readers?
<input type="checkbox"/> Is the manuscript clear and well organized?
<input type="checkbox"/> Are there excessive grammatical errors?
Title and abstract
<input type="checkbox"/> Is the title appropriately descriptive of the study?
<input type="checkbox"/> Does the abstract "stand alone" as an accurate representation of the study?
<input type="checkbox"/> Is any critical information missing from the abstract?
Introduction
<input type="checkbox"/> Is a contextual framework provided, explaining why the topic is worth studying?
<input type="checkbox"/> Is the most relevant and up-to-date background literature cited?
<input type="checkbox"/> Do the authors clearly state the purpose of the study and/or a hypothesis?
<input type="checkbox"/> Is it clear how this study would add to the field?
Methods
<input type="checkbox"/> Is the research design clear and appropriate to answer the authors' question(s)?
<input type="checkbox"/> Is the study population clearly described?
<input type="checkbox"/> How were subjects recruited?
<input type="checkbox"/> Are inclusion and exclusion criteria clearly stated?
<input type="checkbox"/> Was a control group used? Were they appropriately similar to the intervention group(s)?
<input type="checkbox"/> For retrospective studies or database queries, how were cases identified and collected?
<input type="checkbox"/> Are the methods sufficiently described that the study could be replicated?
<input type="checkbox"/> Were reliable and validated measurement instruments (surveys, screening tests, etc) used?
<input type="checkbox"/> Was the study approved by the institution's human subject committee, or other appropriate regulatory body?
Analysis
<input type="checkbox"/> Are primary and secondary outcomes clearly stated?
<input type="checkbox"/> Does the primary outcome appropriately address the aim of the study?
<input type="checkbox"/> Was assessment of outcome variables subject to bias?
<input type="checkbox"/> For hypothesis-driven studies, was a power analysis performed to determine the necessary sample size to answer the question?
<input type="checkbox"/> Are the statistical tests used appropriate?
<input type="checkbox"/> Are confounding variables considered and accounted for?
<input type="checkbox"/> How were missing data handled?
<input type="checkbox"/> Should the manuscript be reviewed by a statistician?
Results
<input type="checkbox"/> Were all recruited subjects accounted for at the end of the study?
<input type="checkbox"/> Are measures of statistical significance reported (when indicated) for quantitative outcomes?
<input type="checkbox"/> Are the findings clinically and statistically significant?
<input type="checkbox"/> Is there internal consistency between the data presented in the tables and that described in the text?
<input type="checkbox"/> Is there excessive repetition between the text and the tables?
<input type="checkbox"/> Are all analyses reported relevant to the study question(s)?
<input type="checkbox"/> Do the authors refrain from interpreting their findings in this section?
Discussion
<input type="checkbox"/> Do the authors compare and contrast their findings with the work of others? Do they offer possible explanations of conflicting findings?
<input type="checkbox"/> Are the conclusions drawn supported by the results presented?
<input type="checkbox"/> Do the authors refrain from overgeneralizing their findings (eg, to populations other than the one studied)?
<input type="checkbox"/> Are limitations of the study acknowledged?
<input type="checkbox"/> Are areas for future research discussed?

the full text of the article. The reviewer might therefore wish to give these sections thoughtful consideration even before reading the full manuscript, taking note of the impression they give of the study described. The title should be brief, yet specific enough to represent the study accurately and attract the desired audience. Although "catchy" titles are not necessary, when they remain professional they

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