

Peer Review of a Manuscript Submission A How-To Guide for Effective and Efficient Commentary

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Scientific publication is fundamentally based on feedback, a process whereby reviewers are asked to evaluate the scientific merits of the submitted manuscript contents and provide feedback.¹ It is hoped that through this peer review process, “good science is enhanced and bad science is dismissed.”² Journal editors will discuss the merits of a manuscript critically informed by the reviews provided.³ An invitation to conduct peer review is a chance to serve as the arbiter of scientific quality and an opportunity to participate directly in the dissemination of new knowledge.

Unfortunately, many reviewers never receive formal guidance or mentorship on how best to review an original research manuscript. With the growth of academic medicine and the proliferation of open access journals, high-quality peer reviews have become even more important to the scientific process. An estimated 2.5 million scientific manuscripts are now published each year,⁴ and the global scientific output has been doubling every 9 years.⁵ Accordingly demands on reviewers continue to grow. An estimated 63.4 million uncompensated hours were devoted to peer review in 2015.⁶ A reviewer's time commitment likely decreases with experience and familiarity with the science, but our experience consistently suggests that a good review takes an average of 2 to 3 hours.

Therefore, the editors at *Circulation: Heart Failure* and *Circulation: Cardiovascular Quality and Outcomes* felt it worthwhile to provide an opinion about what constitutes a great review of a submitted manuscript. Joseph A. Hill, Editor-in-Chief of *Circulation*, codified the peer review process in simple terms: “Is it new? Is it true? Does anybody give a #*&%?”² Here, we expand on that sage advice. In addition, after countless hours of personally reviewing manuscripts and reading others' commentary, we aimed to distill out pearls on how reviewers might do this important and necessary task efficiently and enjoyably.

Reviewing, like medicine, is an art. The best reviews capture the uniqueness of the manuscript combined with

the individuality of the reviewer. That said, basic advice and standard guidelines can provide new reviewers with a solid background, improve the review process, and lead to clearer assessments and actions for submitted manuscripts. In general, a reviewer will provide confidential comments to the editor about the manuscript and separate comments to the authors. Just as with the expected order of a manuscript (ie, background, methods, results, discussion), an expected order of commentary helps the reviewer touch on all key aspects of evaluation and helps editors and authors efficiently take in commentary in a logical fashion. Therefore, we propose the following questions to consider when asked to review (Table 1), guidelines for recording commentary (Table 2), and general advice (Table 3). An example of a high-quality review is given in the [Data Supplement](#). New reviewers should feel comfortable reaching out to the associate editor or research mentors for additional advice and feedback, and some journals have even created programs to formalize the training process (eg, <http://circoutcomes.ahajournals.org/content/circ-cqo-assistant-reviewer-program>).

Ultimately, reviewing manuscripts should be a rewarding experience for everyone involved. For junior reviewers, it is a chance to learn about the process behind the curtain and work on their own scientific communication. For senior reviewers, it is a chance to improve the science and influence what the field sees as important. For both groups, it is quintessential service to our scientific community.

Disclosures

None.

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Table 1. Questions to Ask Before Accepting a Peer Review of a Manuscript

1. Do I have the time?
a. You can commit the 2–3 hours it takes to do a thorough review.
b. You can submit your review on time (usually ≤ 2 weeks). Do not accept if you cannot hold to the timeline, as it slows the entire review process.
2. Am I qualified to review the topic?
a. You do not have to be an expert in the topic, but you should have a decent knowledge in at least some key aspects of the research.
3. Do I have a conflict of interest?
a. You should not review manuscripts with any authors from your institution.
b. You should not review manuscripts where you have a significant stake—financial, professional, or personal—in whether the work gets accepted. You can ask the editor if you are unsure.
c. You will maintain confidentiality and respect intellectual property.

Table 2. Suggested Format for Reviewer Comments

Comments to the authors: The entire review should rarely be longer than 1 single-spaced page of text. Consider the following organization:
1. Introductory Summary
a. Provide a brief summary of the manuscript. In your own words, succinctly describe the study objectives, the methods used, and the key findings.
2. Novelty—“Is it new?”
a. Assess whether the study questions and findings are novel or not. Lack of originality is the most common reason for rejection in higher-tier journals. A well-conducted study that confirms prior work is often relegated to lower-tier journals.
b. Conduct a brief literature search of recent publications. A search for similar publications by the same authors may identify duplication and modification of previously published work.
3. Methodology—“Is it true?”
a. Assess the internal validity of the study. Are the methods appropriate for the question asked? Are there fundamental limitations in the approach or data? If it is an observational study, did the analysis attempt to account for confounders using appropriate statistical techniques?
b. Avoid the temptation to ask for many more experiments or analyses unless they are targeted and feasible.
c. Assess the external validity of the study findings. How generalizable are the study findings to other populations?
4. Significance—“Does anybody give a #*&%?”
a. State whether you find the study interesting or not. Does it have a meaningful hypothesis and rationale, with relevant implications?
5. Presentation—“Is it enjoyable and easy to read?”
a. Provide a general impression of the writing and presentation. Do not attempt to rewrite a manuscript or give a lengthy list of edits. One can say that syntax/grammar should be significantly improved, supplemented by a few examples of errors. Many journals partner with writing consultants who can be suggested to assist with revisions.
b. Consider length. A comment such as “This manuscript is too long” is less helpful; provide specific suggestions for eliminating parts, condensing others, and where additional detail would be helpful.
c. Review the abstract, figures, and tables. They are the meat of an original research manuscript and the focus of readers. Is the abstract an optimal summary? The conclusion of an abstract is probably the most important sentence in a manuscript—make sure it is a clear and reasonable reflection of the work. Are the figures clear and clean? Do the figure legends stand alone, illuminating and clarifying each figure? Is there appropriate labeling? Do tables provide added value? Are they clear, decipherable and easy to read? Could someone understand the entire study simply by perusing the figures and tables?
d. Review references. Are they carefully selected and appropriate? A quick spot check for important and recent work is helpful. References should neither be too many nor too few.
Comments to the editor: Do not leave blank!
1. Honest impression: Here, you say what you think in a short, unvarnished few sentences. These comments are very helpful to the Associate Editors handling the manuscript, who must decide whether to advocate for the manuscript or not. Do not merely copy your comments to authors. While comments to the authors are of a different nature than those to the editor, they should be consistent with each other. This is a great area to address the question of priority—how important is the manuscript to the field.
2. Recommendation: Tell the editor what you think should happen to the manuscript:
a. Minor revisions: A great manuscript that is well done, mostly with minor comments.

(Continued)

Table 2. Continued

b. Major revisions: A good manuscript that is probably worthy of this journal, yet could be significantly improved. Usually, this decision suggests that there is at least one significant issue with the manuscript but you think it is addressable by the authors.
c. De novo submission: A manuscript on a good topic that has major flaws such that the current version is being rejected. Another version may be considered if the authors can make major changes. These changes might entail new analyses and reframing of the perspective of a manuscript.
d. Reject (Not worthy)
e. Note: Manuscripts rarely receive Accept without the need for any revision.

Table 3. Ten Pearls on How Reviewers Can Improve the Review Process for Themselves

1. Apportion a certain amount of your professional time to peer review, with some wiggle room to allow for lighter and heavier weeks. Consider how many manuscripts you yourself submit, and how many reviews you get, and then think that you should probably provide at least that many back to the community.
2. Select manuscripts for you to review that are of interest and have synergy with other clinical or research activities.
3. Focus within a few journals. This may allow you to get to know a few editors and may lead to subsequent invitations to participate on an editorial board or write commentary.
4. Provide succinct commentary. An average review is ≤ 1 single-spaced page of text.
5. Do not try to fix a manuscript. If you get into a manuscript and find that it is not close to the bar for submission, provide clear reasons for rejection and move along. Do not go line-by-line with miniscule comments.
6. Do not feel obligated to comment on every section of the manuscript. Rather than burying yourself in technical details, editors often want to know what you think of the manuscript.
7. Do not say in comments to authors whether the manuscript merits publication. That should be shared in the comments to editors only.
8. Do not be rude or mean. Remember the time and energy that has gone into a work. Always provide constructive comments to improve the quality and rigor of the manuscript. The golden rule is applicable in reviews as in other areas of life.
9. Before submission, read over your review to ensure your comments are clear and understandable.
10. Numbering your comments can be helpful.

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Supplemental Material

Example of a high-quality review

Title: Stress Testing Following Percutaneous Coronary Intervention in the VA Health Care System: Insights from the VA CART Program⁷

Confidential Comments for the Editors (Required)

This is a very well-written paper. It isn't the most innovative work, but it is extremely well-done and makes an important point that I think readers of CQO will appreciate. I would move forward with it.

Comments for the Authors (Required)

The paper by Bradley et al. examines patterns of stress testing following PCI in the VA population. It is a topic that has been covered in other data sets but has yet to be reported in an integrated healthcare delivery system. The key findings are that VA patients receive stress testing less often than has been reported in other studies but that substantial variation still exists across facilities. The authors also report some facility-level data that suggests a lack of correlation between stress testing and outcomes. The paper is largely an extension of prior work but does have some unique features. It is very well written and the analysis is clearly described. Please consider the following comments:

- 1) I think 1- and 2-year stress testing rates (not just 2-year) should be reported in the abstract and results. This will be useful to readers.
- 2) I might also add a phrase at the end of the first sentence of the conclusion that states: "and not associated with a temporal spike." I think the authors' point that the use of stress testing was gradual is a huge point. This is a population with CAD and will have some stress testing performed at baseline due to appropriate clinical indications. I also wonder if the authors might be able to tease out whether or not the differences between high- and low quartiles was primarily being driven by temporal spikes at the 12-month or 24-month period time window. That is, was the relative difference being driven by the presumably "routine" use of stress tests?
- 3) Did the authors consider other types of imaging studies, like cardiac CTA, that might be used as an alternative to stress testing?
- 4) Did the authors consider the timing of hospitalizations following PCI as a trigger for the stress testing? Again, I believe their goal is to get around their lack of ability to distinguish between "routine" stress testing and stress testing triggered by symptoms (which they don't have). I wonder if they could get around this to some extent by looking at hospitalizations or ED visits.