

# Peer Review: A Necessity for Assuring Quality of Scientific Publishing

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*Donald School Journal of Ultrasound in Obstetrics and Gynecology* (2020): 10.5005/jp-journals-10009-1667

## INTRODUCTION

There are three main purposes of peer review of scientific manuscripts:

- To prevent publication of no original data, i.e., of not original scientific results.
- Make certain that all the previously published data on a given matter are cited.
- Assure that the data in the manuscript are presented clearly and logically.

Peer review is an essential assistance to the editorial board/ editor of scientific journals to provide expert opinion on the above three purposes. It helps the editorial board to assure acceptable quality of the manuscripts published in their journal. I have mentioned "acceptable quality," but it is quite clear that the most prestigious scientific journals have the highest possible quality and relevance of published papers. To this end, most of the highly prestigious scientific journals often reject up to 90% of the submitted manuscripts.

When a peer reviewer is asked to review a manuscript, the first duty is to sincerely determine if she/he should accept the duty. High in the priority of her/his consideration is a possible conflict of interest. One of the simplest definition of the conflict could be a conflict between personal interest and that of the public responsibilities. Thus, any personal relations to the author(s) of the manuscript should be assessed and could be the reason to avoid the involvement in determining the quality of the manuscript. This is an extremely sensitive part of the peer-review process, and it should be very carefully examined before accepting to review a manuscript. Next should be an honest inquiry of the peer reviewer into hers/his expertise related to the subject of the manuscript. A true expert should be well versed into the relevant matter, since one of hers/his duties is to determine if the manuscript brings any original new knowledge in the field. To be able to conclude about that, the peer reviewer has to be aware of the "status of the field." Only then she/he can properly assess the main reason for publishing the manuscript—adding a new knowledge to the given field of science.

Only after these essential decisions, she/he can undertake the other two parts of the peer review: ethical issues, that is, mentioning all colleagues who have investigated and published in the same field. Second are the questions of style in presenting data and conclusions.

Once accepting the "job," the reviewer has to be conscious of the fact that she/he will most likely be among the first to know an exclusive information about the new data. Ethically, this should be the burden on her/him to be very careful how to use it. It would be completely unethical if the information would be

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**How to cite this article:** Silobrčić V. Peer Review: A Necessity for Assuring Quality of Scientific Publishing. *Donald School J Ultrasound Obstet Gynecol* 2020;14(4):299–300.

**Source of support:** Nil

**Conflict of interest:** None

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used for personal gains or not authorized public information. Furthermore, when giving her/his judgment, it should be given in collegial manner: by suggesting possible corrections, additions, and similar improvements of the manuscript. The entire tone of the review could be critical but with clear respect to the author(s), avoiding any denigration of the authors. If the reviewer arrives at a negative opinion about the manuscript, it should include relevant arguments. It might be a good professional courtesy to suggest amendments and steps to improve the concept of the research described, sometimes with very concrete suggestions for improvements. Any improper stylistic formulations or inadequate linguistic anomalies should not be taken as decisive argument to propose rejection of the manuscript.

It may be that a given manuscript contains confirmative results of a previously published discovery. Confirmation is very important before the discovery is accepted and becomes an addition to the present knowledge. Obviously, if confirmation settles the matter, any further confirmation is superfluous, after supportive evidence of a given new discovery has been convincingly established.

Here I could add that much of the same is used when evaluating professional manuscripts. The main difference being in the originality of data presented. But the other considerations may be the same as for scientific manuscripts.

Once the reviewer resolves that the manuscript is worth publishing, she/he should concentrate on the presentation of the data. This may include clarity of sentences, logic of the order of presentation, necessity of illustrations, appropriate statistics, etc.

It seems to me that, instead of further descriptions of details of the peer review, it might serve the purpose to copy some of my comments and decisions while I was writing review reports to the editorial board of an international journal dealing with immunology. It will be clear from the below presented reports that I have tried to suggest alterations of the manuscript in question rather than rejecting the manuscripts. This, of course, if there were enough valuable data to support such a decision. As a practicing scientist,

I was quite aware of the effort and cost to perform properly a scientific investigation.

### EXAMPLES OF THE PEER-REVIEW

It is understandable that when presenting copies of my review, I have no possibility to present the manuscripts under my review. But the idea of presenting these copies (see below) was not to prove or disprove me right or wrong in my judgment, from the details of the written assessment. My hope is that the examples of a peer review would provide guidance to aspiring reviewers to have a clear assignment when deciding to do it. Since the time of the presented examples has long passed, I see no ethical problems with them.

In the journal in which I served as one of the peer reviewers, four decisions were offered for a given manuscript: accepted as it is, accept after minor alterations, accept after major alterations, and rejected for the following reasons. In a case of decision: "acceptable as it is," it was necessary to use a few sentences characterizing the well-done research. The other decisions present a more valuable example of the review for practical instructions how to do it.

- The paper may be accepted with the following major alterations: First a few general comments:
  - I would suggest omitting of Figures 7B and 7C, since their content could be given in a few words.
  - It might be better to unify the abbreviations for plaque-forming cells (PFCs) and antibody-forming cells (AFCs) and use only one of them.
  - It would be more precise to speak about inhibition of plaque formation rather than inhibition of AFCs or PFCs.
  - The last sentence on page 11 contains the expression "maturation of affinity." I would suggest that the authors use the term "maturation of the immune response," while for affinity, one could use "stronger," "greater," etc.
  - Abbreviations are not listed on the front page.
  - It would be better to divide the fourth paragraph of the Introduction so that the first sentence becomes part of the preceding paragraph and the second one starts a new paragraph.
  - There is no space in the text designed for the Figures 5, 6, and 7.
  - In the first paragraph on page 12, the authors should state when they refer to IgM and IgG, respectively.
  - Page 13, second paragraph. The second sentence should end with "affinity changes with time." The second sentence should start: "After the 50 mg dose . . ."
- Legend to Figure 2: the broken line with open circles corresponds to IgG not IgM.
- Legend to Figure 5: IgM instead of IgG.
- This paper may be accepted with the following minor alterations:
  - Page 13, end of second paragraph. The speculations by the authors are intriguing, but I would suggest that they give their view on the possible significance of the autoimmunity.
  - Page 17, Table 1. The description under "a)" is far too long. Most of the text should be incorporated into the section on Materials and Methods.
- The paper should be returned to the authors for the following major alterations:
  - This manuscript contains valuable information on the mechanism of concavalin A-induced, lymphocyte-mediated cytotoxicity, which is considered to be an *in vitro* model for antibody-independent cytotoxicity by T-lymphocytes. It should be published after some additional effort by the authors to improve its clarity, English, and its form.
  - The title is ambiguous: ". . . inhibitory effects . . . on it." It is not clear on what?
  - I have penciled in some suggestions in the text. Primarily, these are not stylistic but bear on the meaning.
  - Page 16. The first sentence should be clarified. What the authors mean by "more cytotoxic activity in different way"?
  - Legend to Figure 4. The two sentences: "Various number" and "After the tubes" belong to the Materials and Methods section.
  - Table 4 has no explanations for the superscripts "a," "b," and "c."

At the end, a general comment. Within a doctoral thesis, it is necessary to illustrate and present all the data one has, to describe the work done. However, when writing a paper on the same results, only most pertinent data should be selected. Therefore, I would suggest that the authors reduce the number of tables and/or figures, either by selecting the most pertinent data or by combining them.

Let me repeat here my reasons for presenting the above examples. The idea was to present models of the review, with all the necessary parts of the proper peer review, taken as an essential help to the editors of scientific journals to assure quality of the articles published in their journal.