

## What Happens When a Scientific Paper is Submitted to a Biomedical Journal?

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Agneta Andersson is the Editorial Manager of Acta Dermato-Venereologica, Forum for Nordic Dermato-Venereology and Journal of Rehabilitation Medicine. During her more than 20 years as an editorial manager she has seen many manuscripts passing. Here she gives some aspects to think about before submission of a paper.

### Introduction

“Publish or perish” refers to “the pressure to publish work constantly in order to further or sustain one’s career in academia. Frequent publication is one of the few methods at a researcher’s disposal to improve their visibility, and the attention that successful publication brings to authors is the reward for hard work” (Wikipedia; <http://en.wikipedia.org>).

This article describes what happens to papers submitted to biomedical journals and how the review system works.

### Preparing a paper for publication

**Authorship.** All authors must first meet the authorship criteria. The current International Committee of Medical Journal Editors (ICMJE) statement on authorship (<http://www.icmje.org>) states:

*“Authorship credit should be based on 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.”*

All contributors who meet the journal’s criteria for authorship should be listed as authors and other contributors (e.g. statistical analysts, language editors), with the contributors’ approval, should be identified in the acknowledgements section.

#### Instructions to authors

- Authors should read the *Instructions to Authors* carefully and follow all the recommendations for manuscript preparation. They will need to decide what type of paper to submit: e.g. Review article, Original report, Letter to the Editor, Debate article, Commentary.
- Authors should provide copies of any cited manuscripts that are submitted or in press.

- Permission must be obtained by the authors from any copyright owners for reproduction of content (e.g. figures and tables) in the submitted manuscript, if applicable.
- Written permission must be provided from any potentially identifiable individuals mentioned or shown in photographs in the manuscript.

**Disclosure of conflicts of interest.** It is important that authors state all conflicts of interest. The credibility of a published paper depends in part on how well this is described. Conflict of interest exists when an author has financial or personal relationships that might influence the reporting of data. There is also a conflict of interest when there is a known relationship but no influence is made on the reporting, and this must be stated clearly. Authors must state all sources of funding for research and include this information in the acknowledgements section (1).

**Ethical statement.** When reporting studies on human subjects, approval by an ethics committee must have been obtained.

#### Facts about scientific publication

- The publication of scientific journals began in the 17th Century. In 1665 Denis de Sallo published the first volume of the first Western scholarly journal, the Journal des Scavans.
- For a long time scientific publication was handled by universities on a not-for-profit basis.
- Now commercial publishing companies publish many journals, as the costs and demands of publication grew too large for universities to handle alone.
- Previously there were only a few scientific journals, each covering a wide range of subjects.
- Now there are many highly specialized journals, some covering only one topic.
- Because of the pressure to “publish or perish” there are now probably more authors than readers.

Authors must state in the materials and methods section of their paper that the research protocol has been approved by the relevant institutional review boards or ethics committees and that all human subjects have provided appropriate informed consent.

*Language.* Papers submitted to an international journal must usually be written in English. It is the author's obligation to ensure that an expert in writing medical English checks the language before submitting the paper.

### Submitting a paper

*Deciding where to send the paper.* A paper will obtain the best recognition if it is published in a peer-review journal with a high impact factor. Peer-review journals send the submitted papers for review by experts within the same field as the paper is dealing with.

The *ISI Web of Knowledge* (<http://isiwebofknowledge.com/>) lists 39 journals in the field of dermatology. Of these, 20 are listed in Table I with their rankings. The *impact factor* measures how often articles in a specific journal have been cited. The total number of citations during a year, of the two immediately preceding years' issues, for example citations in 2006 of the journals published in 2004 and 2005, are weighed against the number of articles published in 2004 and 2005 in that journal. The *cited half-life* measures the number of years, preceding

Table I. *Impact factor for the top 20 journals in dermatology*

Abbreviated journal title	Total citations	Impact factor	Articles	Cited half-life
J Invest Dermatol	17757	4.535	285	7.5
Br J Dermatol	14099	3.334	353	7.2
Pigm Cell Res	1668	3.180	52	4.4
Arch Dermatol	11004	2.851	188	>10.0
J Dermatol Sci	1409	2.636	76	5.1
J Am Acad Dermatol	14545	2.553	343	8.2
Exp Dermatol	1593	2.449	99	3.9
Contact Dermatitis	4072	2.446	95	9.3
Dermatol Surg	3495	2.309	162	4.7
Wound Repair Regen	1339	2.230	90	5.0
Am J Clin Dermatol	856	2.022	47	3.9
Dermatology	4174	1.854	156	8.1
Acta Derm Venereol	2801	1.837	71	>10.0
Melanoma Res	1471	1.704	70	5.8
Clin Dermatol	1091	1.600	58	7.3
J Cutan Pathol	2023	1.582	146	8.1
J Eur Acad Dermatol	1512	1.532	209	4.0
Skin Pharmacol Phys	804	1.480	41	6.0
Skin Res Technol	498	1.418	47	4.6
Arch Dermatol Res	2040	1.333	77	9.6

### Main tasks of the journal Editor

- Providing guidelines for preparation and submission of manuscripts.
- Establishing and enforcing authorship criteria.
- Establishing and defining policies on conflicts of interest.
- Making editorial decisions directly and/or with input from peer-reviewers.
- Establishing a system for effective and rapid peer-review.
- Assigning papers for review appropriate to the reviewers' areas of interest and expertise.
- Providing reviewers with written, explicit instructions on the journal's expectations for the scope, content, quality and timeliness of their reviews to promote thoughtful, fair, constructive and informative critique of the submitted work.
- Allowing reviewers appropriate time to complete their reviews (usually 2–3 weeks).
- Developing mechanisms to ensure timely publication of accepted manuscripts.
- Explicitly stating journal policies regarding ethics, embargo, submission and publication fees, and accessibility of content (what is freely available vs what is under a subscription model).

the current year, that account for half of the total citations received by the cited journal in the current year.

*Online submission.* Nowadays almost all journals accept online submission. A letter stating that the paper has not been submitted to any other journal and describing its main advantages must accompany the submission. Some journals also appreciate receiving suggestions for suitable reviewers who are well-versed in the field of the particular manuscript.

*Multiple submissions.* It is not acceptable for authors to submit the report of a study to several journals at the same time, including a manuscript undergoing peer review that has not been formally rejected by the original journal to which the manuscript was submitted.

### What happens after submission?

*Editorial process.* On receipt at a journal's editorial office a paper will be entered into a database to track it through the editorial and publication process. An acknowledgement of receipt is sent to the authors. Once in the system the journal Editor decides whether the paper qualifies for the peer-review process.

A manuscript can either be rejected immediately or, as rarely happens, be accepted without revision, on the decision of the Editor. The decision for immediate rejection may, for

Table II. Advantages and disadvantages of peer-review

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Peer-review adds value to a manuscript.</li> <li>• Authors have the opportunity to correct mistakes prior to publication and respond to criticism raised. Once a paper has been published the authors are less likely to ask for errata to be published later on.</li> <li>• It helps authors to improve the quality of the research and their papers.</li> <li>• It helps editors to make expert judgements of papers.</li> </ul>	<ul style="list-style-type: none"> <li>• It delays publication.</li> <li>• Reviewers put substantial amounts of time and energy into the review process, largely without any remuneration.</li> <li>• Authors may be offended by harsh criticism of their paper.</li> </ul>

example, be because the subject of the paper is not within the scope of the journal, or because it is very poorly written. Following receipt of the peer-reviewers' recommendations the paper may be accepted as it is, with minor or major revision, or rejected.

The top journals usually reject more than 50% of papers submitted to them, and some have even higher rejection rates.

*Peer-review. The peer-review process is more than 250 years old. The word peer can be defined as "a person of equal standing". However, in the context of peer review it is generally used in a broader sense to refer to people in the same profession who are of the same or higher ranking.* There has been a lot of debate as to whether to have double-blind (masked author and reviewer), single-blind (masked reviewer) or open reviews. It is, however, difficult to make the process double-blind, since even though the authors' name can be removed, one can in most cases identify the authors from the names of departments and hospitals occurring in the text. If the process was open, reviewers would be more likely to decline to review a manuscript. Thus most journals choose to have single-blind peer-review. Reviewers are selected based on their expertise and availability, and the reviewers, together with the Editor, have ultimate authority over a manuscript's fate (Table II). Most journals have at least two reviewers examining each paper.

*Verdict time.* The time from submission to first verdict varies a great deal from journal to journal. On average it might be 4–10 weeks. If it is longer than this, an author should enquire what has happened to their paper in order to be sure that it has not been stacked somewhere. Reaching the verdict on a revised manuscript takes approximately 4–6 weeks.

### Revision

If the verdict of this first review process is a request for a revision, the author should resubmit the paper after having paid careful attention to all the questions and criticism raised by the Editor and the reviewers. The time allowed for revision is generally longer if the request is for a "major revision" rather than a "minor" one.

The revised paper is then considered by the Editor once again, and sometimes also by the same reviewers who considered the first version.

This procedure is sometimes repeated several times before the manuscript is finally ready for publication. In rare cases a paper can be rejected even at this stage if the authors fail to, or are unwilling to, comply with the suggestions for changes, without giving adequate responses to the questions raised.

#### Main tasks of the reviewers

- Provide written comments on the scientific value of the work.
- Indicate whether the writing is clear, concise and relevant, and rate the work's composition, scientific accuracy, originality and interest to readers.
- Avoid personal comments or criticism and refrain from direct contact with the author/s.
- Notify the editor immediately if unable to review in a timely manner and provide names of other potential reviewers, if possible.
- Notify the editor about any potential personal or financial conflict of interest and decline to review a paper when the possibility of a conflict exists.
- Determine scientific merit, originality and scope of the work; indicate ways to improve it; and recommend acceptance or rejection using a rating scale.
- Note any ethical concerns, such as substantial similarity between the reviewed manuscript and any published paper or any manuscript concurrently submitted to another journal. Any violation of accepted norms of ethical treatment of animal or human subjects should also be pointed out.
- Note any suspicion of fabrication or falsification of data or plagiarism.
- Ensure that the published articles adhere to the journal's standards.
- Be alert to any failure to cite relevant work by other scientists.

## Acceptance for publication

After acceptance the editorial office copyedit the paper to correct errors of language and standardize the style according to the journal's rules. Thereafter a formal acceptance letter is sent to the corresponding author and the paper can then be cited, giving the journal's name and "in press".

*Copyright or licence to publish.* A "copyright form" has to be signed after acceptance but before publication. "Licence to publish" is a new alternative that has been introduced recently. This means that the authors can reuse their papers in their own future articles without first requiring permission from the publisher of the journal, but that the publisher retains the right to reproduce and distribute the papers in order to receive financial compensation for their contribution to the publication process.

*Proof-reading.* Proof-reading is entirely the author's responsibility. As copyediting changes may have been made during the editorial process prior to publication of an accepted paper (for example, in order to apply journal style and correct any language and typographical errors), authors should compare the proofs with their original manuscript to ensure that no incorrect changes have been made.

When correcting proofs authors should use standard proof-correction marks where possible. All corrections should normally be written both in the correct place in the text and given as a marginal mark, as shown in Fig. 1.

*Page charges.* Some journals have instituted a page charge. For most of these journals, submitting a paper, the editorial procedure, the review process and the verdicts are free of charge, but as soon as a paper is accepted for publication there is a fee per printed page. Additional payment is sometimes required for colour figures.

## Publication

Once the proofs have been checked by the authors and all corrections made, the paper is ready for publication. At this stage the paper will be in the queue for a place in a forthcoming paper issue of the journal.

*E-pub ahead of print.* Different journals have different ways of presenting articles that still are not allocated an exact issue and page numbers, e.g. "preview", "e-pub ahead of print" "publication early", etc. This means that the paper is made available electronically and can be cited via its unique digital object identifier (DOI®) number. DOI® numbers and the papers they refer to are recorded by an American organization (CrossRef; www.crossref.org), who receive the relevant information from

Meaning	Marginal Mark	Meaning	Marginal Mark	Meaning	Marginal Mark
Turn type	Ⓢ	Set in italic (underline once the word[s] concerned)	<i>ital</i>	Insert matter indicated in margin	V or Λ
Delete	} or J/	Set in roman	rom	Substitute superior character(s)	⌈
Insert space (between words)	#	Set in capital letters (underline 3 times the word[s] concerned)	caps	Transpose	↗
Join words	⊖	Set in small caps (underline twice the word[s] or letter[s] concerned)	s.c.	Indent	⌊
Insert hyphen	⊖	New line	□	Cancel indentation	⌋
Close up - reduce space between letters	↓	Run on	—	Leave as printed	—
Set in bold type (encircle word[s] concerned)	<b>bold</b>			More space (between lines)	⌋
				Less space (between lines)	⌈

Reference marks //F (R) FILE Δ) HF -4

Fig. 1. How to correct proofs.

each publisher. Thus, although publication in the printed journal may take several months, the "final" version of an article is available and can be viewed, but without the page numbers

*Electronic publication.* As soon as the article has been allocated an issue number, it is published online first on the journal's website together with the rest of that issue's articles. Now the paper can be cited using its full reference, i.e. journal, volume, year and page(s). This electronic publication occurs 2–3 weeks ahead of the paper version being published and sent to subscribers.

## Errata

If an error comes to light after publication it can be the subject of a published erratum in a subsequent issue. The decision as to whether to publish an erratum rests with the Editor. It is important that errata are published on paper before corrections can be made on the PubMed-published site.

## Conclusion

The whole process, from submission of a paper to its publication in a journal, may take a year or more, especially if authors need to make substantial revisions or perform additional research in order to satisfy the Editor and reviewers. However, in the best cases, the review and publishing process may be completed within a couple of months, especially if the Editor regards the paper as a high-impact report that should quickly be made public.

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