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HOW TO WRITE AND PUBLISH A RESEARCH PAPER IN *HAEMOPHILIA*

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How to write and publish a research paper in *Haemophilia*

Christine A. Lee and Samantha Gough

Introduction

Hemophilia is a rare disorder and therefore publication of a research paper relating to hemophilia is sometimes difficult to achieve in mainstream journals. This monograph will therefore focus on publication in the journal *Haemophilia,* which has the specialized readership of the hemophilia community.

Haemophilia was conceived and founded at *Blackwell Science* in 1993 with the first issue, January 1995, appearing as a launch issue in October 1994. It became the official journal of the World Federation of Hemophilia (WFH), publishing the abstracts of the biennial meeting of WFH from 1996. *Haemophilia* is an international journal dedicated to the exchange of information regarding the comprehensive care of hemophilia and contains review articles, original scientific articles, and letters related to hemophilia. All submitted material is independently peer-reviewed.

It is important to note that every journal has a defined aim and scope, as well as individual submission criteria. Authors should always consult the guidelines for the specific journal to which they plan to submit.

How to write a scientific paper

Types of scientific paper

There are different types of scientific paper:

- **Original articles** should present new findings. The results should be placed in context with current scientific material and supported by relevant data.
- **Review articles** provide an overview of the current information available on a given topic.
- **Meta-analyses** provide analysis of treatment effectiveness based upon the results of a series of clinical trials
- **Editorial comments**, which may include letters to the Editor and case reports.

In order for a paper to be accepted for publication in a scientific journal, it must address a good research question, report the results of a well-designed study, and be written clearly.

A good research question is clinically important, novel and timely—the right question at the right time. There are some helpful websites. The International Committee of Medical Journal Editors has published the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication*, which can be accessed at www.icmje.org. There is also a statement on the Consolidated Standards of Reporting Trials (CONSORT) website, at www.consort-statement.org.

Components of an original article

The required components of an article will differ from journal to journal. For *Haemophilia*, each article should contain the following:

1. Title
2. Structured abstract
3. Keywords
4. Introduction
5. Materials and methods or Patients and methods
6. Results
7. Discussion
8. Acknowledgements
9. Declaration of interests
10. References
11. Legends to figures and tables
12. Figures and tables

Title

The title should be as short as possible and it should explain precisely what the article is about. The title should also contain the 'keywords' (selected by the author), to improve how the article will be found by internet search engines. Further guidance on search engine optimization can be found on the Wiley-Blackwell Author Services page: authorservices.wiley.com/bauthor/seo.asp.

It may be helpful to prefix article titles such as 'Review article', 'Systematic review', 'Meta-analysis',

'Clinical trial'. The title must be devised with great care in order to attract readers.

Structured abstract or summary
This is comparable to an abstract submitted to a scientific meeting. Like the article, the abstract (sometimes called a summary) should be structured, with the following components:

- Introduction/background
- Aim
- Patients and methods
- Results
- Conclusion

Many journals suggest a word limit; an abstract should ideally be approximately 300 words. Like the title, the structured abstract must be written very carefully, so that it will attract readers and encourage others to cite the article.

Keywords
The selection of keywords is of paramount importance because this is how the published paper is indexed by search engines. If the keywords are well selected, the article is more likely to be found, read, and cited by others.

Introduction
The introduction should be concise. The importance of the research topic should be stated. A short review of the established knowledge should lead on to what is known and unknown. The hypothesis of the research project (research question) should be explained.

Patients and methods
This can be written in continuous prose with generous use of paragraphs or sub-headings. The following issues should be covered:

- Demographics of the patients or subjects
- Inclusion and exclusion criteria
- Study design
- Interventions, treatment
- Methods of measurement
- Statistics
- Ethics and clinical trial registration where relevant

Results
It is important to avoid including methods or discussion in the results section. The reader should be helped to see exactly what has happened, using a combination of text, tables, and figures. The expert advice of a statistician should be used.

Good visual presentation is often the best way of making the data clear. Figures should look good and the legend should explain the figure without reference to the text. When viewed on the Wiley Online Library, figures in *Haemophilia* can now be made easily into PowerPoint slides.

Often journals allow for supplementary data to be published online only—this is a useful way to publish large tables and additional figures.

Discussion
The hypothesis raised in the introduction should be considered in relation to the results obtained in the study. The discussion should explain why the results support the hypothesis and why they do not. It is important not to present actual results in the discussion.

The results should be considered in relation to other published articles.

It is important to identify the limitations of the study and to suggest directions for future research.

Acknowledgements
The precise role of all authors should be listed and any additional contributors to the study should be listed.

Declaration of interests
Sources of funding for the study and any personal funding received from relevant pharmaceutical industries by authors should be declared.

References
Medical science is evidence-based and therefore every article references previously published data or results. Review articles and meta-analyses are a good source for correct references. It is important to use the latest relevant references; it is sensible to perform a PubMed search (www.ncbi.nlm.nih.gov/pubmed/) of the topic of the planned article before submission.

Authors should avoid omitting rivals' work, as well as over-referencing their own papers excessively.

Most journals require references to be numerated throughout the text and referenced numerically at the end. Some journals list the first author and year of publication in the text and then list the references

in alphabetical order at the end. Most journals use the convention of listing the three authors, followed by *et al* where there are more than six authors. The paper should be prepared in the style of the journal to which the paper is submitted. If a paper is rejected and re-submitted to another journal, the reference style may need to be revised. Further guidance on referencing style can be found in the Author Guidelines for the specific chosen journal.

Legends to tables and figures
The legends should be listed separately from the tables and figures. These should be clear and concise. It is important to have the correct number for the appropriate table or figure.

The order of writing a paper

This is a personal choice. However, it is easiest to write the methods and results first because these should be clear-cut and also provide the basis of the paper. The methods should be understandable; often it helps to have subheadings. The results may be presented as figures and tables. These should not be too detailed or complicated. The legend should always explain the table or figure without the need to refer to the text. Subheadings will make the substance of the results section clearer to the reader.

The completion of the methods and results enables the writing of the introduction to be totally focused with the aim of the study foremost.

The discussion is the chance for the authors to make conclusions about the significance of the study and to set their findings against the background of established literature.

The references will have been assembled during the writing of the paper but at this stage, they should be checked for accuracy and cross checked against the numbering within the text. Any reference can be verified on PubMed (www.ncbi.nlm.nih.gov/pubmed/) for complete accuracy.

The title, keywords and summary should be composed last of all because these components of the paper will appear repeatedly through online search engines.

It is should be noted that the importance of the components of the paper and the order in which they are written are not necessarily the same (Table 1).

Table 1. Importance of article components vs. suggested order of writing

Importance	Suggested order of writing
1. Title	1. Methods
2. Summary	2. Results
3. Introduction	3. Figures and tables
4. Methods	4. Introduction
5. Results	5. Discussion
6. Discussion	6. References
7. References	7. Title
8. Figures and tables	8. Summary
9. Acknowledgements	9. Acknowledgements

Some practicalities

Spelling
It is important to adapt the spelling according to the style of the specific journal. For example, the word hemophilia is derived from Greek and *haemophilia* is the traditional spelling. However, the American spelling is hemophilia. The journal *Haemophilia* uses English spelling, whereas the WFH uses American spelling.

People with hemophilia do not like being called hemophiliacs. It is better to use the terms, 'people with hemophilia', 'hemophilic patients', or 'patients with hemophilia'.

Numbers
A practical guide is that numbers less than 10 should be spelt, thus 5 should be written 'five'. Numbers greater than 10 should be in Arabic numerals thus, 3,456 (not three thousand, four hundred and fifty six). It is better to avoid starting a sentence with a number. It is advisable to refer to a previous issue of the journal to which the article is being submitted in order to see an example of the accepted style.

Submitting the paper

Most journals now require electronic submission. For *Haemophilia,* for example, papers are submitted through the ScholarOne Manuscripts website: mc.manuscriptcentral.com/hae.

The review process

Scientific papers accepted for publication in scholarly journals are subject to peer review. For most journals this is an electronic process. Manuscripts are usually

Figure 1. Submission page of the ScholarOne Manuscripts website

reviewed by a minimum of two reviewers selected from a reviewer database according to specific expertise, the editorial board, PubMed and editorial choice. The reviewers are encouraged to complete the review within three weeks.

The reviewers assess the paper's suitability for publication against defined criteria. The reviewer is looking for a paper written with clarity in good English. It should be original and the conclusions supported by robust statistics and ethically sound data. The paper should present a coherent story. It is important that the paper fits the aims and scope of the journal.

The journal's Editor-in-Chief will make the final decision regarding publication, based upon the reviewer comments. Some consideration may be made to the article's potential contribution to the impact factor (see page 5) and whether the paper is likely to be cited and downloaded (see page 6). If the paper is not accepted for publication, a revision may be requested. It is important that authors review and respond to the recommendations made by the reviewers and the journal's editor before resubmitting the article.

Publication ethics

Although a paper is usually published when the science is good, if the authors are subsequently found to have transgressed the ethical code, retraction will be mandated. A Wiley-Blackwell resource, *Best Practice Guidelines on Publication Ethics: A Publisher's Perspective,* can be accessed at: www.wiley.com/bw/publicationethics

Plagiarism is the term used when the work of someone else is presented as the author's own. There is now dedicated software to identify this. Some journals now screen submissions against previously published material in order to identify such cases prior to acceptance. If plagiarism is discovered following publication, the paper will be retracted and the Editor may choose to contact the author's institution or funding body to report the matter.

Redundant/duplicate publication is the publication of substantially the same paper in more than one journal. This can also be detected by specific software. "Salami slicing" is the colloquial term used when the same study or data are used across more than one article.

Transparency involves the author understanding and accepting certain publication policies:

i) Declaration of interests—it is important to declare the funding that made the research possible.
ii) Registering clinical trials—clinical trials should be registered in publicly accessible registries.
iii) Respecting confidentiality—protecting patients from being recognized if used in research and in publication.
iv) Protecting research subjects, patients and experimental animals.

Authorship

Most journals have clearly defined authorship criteria. For *Haemophilia*, authors must:

- contribute substantially to research design, or the acquisition, analysis, or interpretation of data.
- contribute to the drafting of the paper or revising it critically.
- approve the submitted and final versions.

The respective contributions should be clarified. Medical writers should appear in the list of authors.

Copyright

Copyright of the paper is typically transferred to the journal, or to the publisher or society who legally owns the title. For *Haemophilia*, all authors are required at the submission stage to complete a Copyright Transfer Agreement Form. The copyright transfer agreement protects against plagiarism, libel, and infringement. It enables efficient processing of licensing and permissions and the maintenance of the integrity of the article by publishers.

The rights maintained by the author include:

- The author is identified as the author whenever and wherever the article is published.
- Proprietary rights such as patents are retained.
- Permission is given to self-archive the submitted version—with acknowledgement to the journal.
- Permission is given to use the final version in e-reserves and for teaching purposes.
- Permission is given to reuse tables, data, and figures.

The publishing process

Acceptance to early view and print publication

After the editor has accepted a paper for publication, it is transferred electronically to the production office. Typically, the paper is copyedited and any minor errors in spelling and grammar are corrected. The paper is then typeset in the journal style and a proof of the paper is produced. The proofs are posted on a website for authors to access and make corrections. The publisher checks all corrected papers and then they are uploaded onto the website of the specific journal.

For *Haemophilia*, papers are uploaded to the "EarlyView" area of the homepage, where they will remain until they have been assigned to an issue of the journal. The papers are delivered to indexing services, such as PubMed, as soon as they appear on EarlyView. Each paper is given a unique DOI (digital object identifier) number for referencing purposes. Other journals may have a different process.

Papers are assigned to a journal issue as selected by the editor(s). This is carefully planned, because some articles may be linked to other papers or editorials. The electronic table of contents of each issue is deployed via e-mail to those who have subscribed to receive it. The print issue is then sent to press—the issue is printed, bound, and packaged in preparation for global dispatch.

Author services

The Wiley-Blackwell Author Services website allows authors to track their paper throughout the production process. The corresponding author will receive details for accessing the service. There are additional benefits, such as free online access to the published article, as well as the option to nominate ten colleagues who wish to receive an electronic version of the paper.

Figure 2. The 'EarlyView' area of the *Haemophilia* website

Online open

For *Haemophilia*, authors may choose to pay a sum of $3,000 to make their paper open access online upon publication. The paper will then be freely accessible to all non-subscribers and may be posted on a website or repository in accordance with the requirements of funding bodies.

Authors should consult the guidelines for the specific journal to which they plan to submit for open access options.

Impact factor

Most authors want to publish a scientific paper in order for people to read and cite their work. The impact factor was devised by the Institute of Scientific Information (ISI) to measure the 'worth' of a journal. ISI is part of Thomson Reuters and lists over 8,500 journals. Further information is available at www.isinet.com

The impact factor in a given year is defined as the total number of citations received by the journal in that year to articles published in the previous two years. Thus the impact factor for *Haemophilia* in 2011 was calculated from the citations received in 2011 to articles published in 2009 (414) and in 2010 (430)—a total 844 citations—divided by the number of articles published in 2009 (147) and in 2010 (178)—a total of 325 articles. This gives an impact factor of 2.597 (844/325).

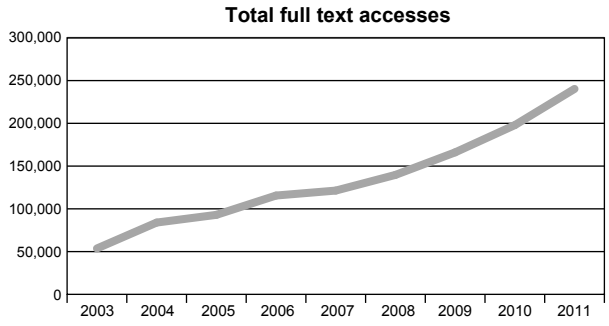
There are other ways of measuring the impact of the journal including the ranking within the specialty group. According to this system, the journal *Haemophilia* is ranked 35th of the 68 journals in the hematology category. More information relating to

the hematology subject category can be found here: thomsonreuters.com/products_services/science/science_products/a-z/isi_web_of_knowledge/.

Readership

Publishers now have the means to measure the number of times the full text of papers was accessed in any given time period. For example, in 2011 there were 240,252 full text downloads from *Haemophilia*. Figure 3 demonstrates article usage for 2003-2011.

Figure 3. Article downloads for *Haemophilia* 2003-2011



Increasing usage remains a key priority for all journals. In the past there has been no way of monitoring how often a journal article in a print issue is actually read. For librarians readership data may influence decisions relating to subscription renewals. These data also allow Editors and Publishers to monitor the performance of papers and to achieve a greater understanding of the journal's readership. This knowledge has the ability to influence future editorial decisions.

The journal in the online world

Authors planning to submit a paper to a scientific journal must be aware that the publishing climate is evolving. Some journals have moved online only and thus no longer print copies of the journal for subscribers. Other journals have opted for alternate models whereby additional material is available online, for example tables and figures.

The number of print subscribers to *Haemophilia* has decreased year on year. In July 2012, only 21% of institutional subscribers retained a print-only subscription to the journal. In a recent survey available on the journal homepage, *Haemophilia* readers reported that online access to the journal offers many benefits, including an opportunity to reduce personal carbon footprint, as well as the speed and convenience of instant access to journal content almost anywhere in the world. In *Haemophilia* letters are now published online only and we have published several special issues of the journal which are available exclusively online.

Conclusions

Medical journals must continually evolve to meet the needs of their authors and readers. New and exciting ways of adding value and improving the user experience for authors and readers are being developed all of the time. For some journals this involves producing podcasts, videos, or web seminars.

It is essential for the success of any journal for there to be collaboration between authors, editors, reviewers, readers, and the publishing team.

Acknowledgements

This paper has been adapted for the journal *Haemophilia* from the following Wiley-Blackwell document: *Writing for Publication: A guide to getting your article published,* Blackwell Publishing Ltd. 2009.

Additional resources

1. Consolidated Standards of Reporting Trials, Consort, www.consort-statement.org.
2. The International Committee of Medical Journal Editors *Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication,* www.icmje.org.
3. Online Research Databases EBSCOhost
4. ScholarOne Manuscripts, mc.manuscriptcentral.com/hae
5. Thomson Reuters, www.isinet.com
6. ISI Web of Knowledge, thomsonreuters.com/products_services/science/science_products/a-z/isi_web_of_knowledge/
7. WHO/HINARI Access to Research in Health Programme, www.who.int/hinari/en/
8. Wiley-Blackwell *Best Practice Guidelines on Publication Ethics: A Publisher's Perspective,* www.wiley.com/bw/publicationethics (originally published Int J Clin Pract 2007; 61(Suppl. 152): 1–26).
9. Wiley-Blackwell *Writing for Publication: A guide to getting your article published* Blackwell Publishing Ltd 2009

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