



Successful abstract writing: An essential skill for medical writers

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Abstract (noun): *A summary or abridgement; that part or thing which represents the essence.*

Chambers Concise Dictionary

Normally, an abstract is a summary of a piece of scientific / medical research. It describes the reason for the research, the methods used, the key results and their implications. It is not an overestimation to judge the scientific abstract as ‘the most important part of a manuscript or document’ because it is read by many more people than the entire article itself, and it frequently serves as a reader’s only exposure to the work being described. For manuscripts submitted to scientific journals, a first review of the abstract could be crucial in determining whether papers are sent out for peer review. For work submitted to a scientific congress, the abstract may determine whether a person is invited to give a poster or oral presentation. Therefore abstract writing is an important skill for medical writers to acquire. This skill can be used in many areas of our work: the preparation of clinical study report synopses, summarising scientific evidence in an Investigator’s brochure, preparing regulatory summaries for the common technical document, and describing key data to a client. A well-written abstract should capture the reader’s interest, is an advertisement for the research and the authors, and enables effective retrieval of the original document. Abstracting can be difficult—you need to be able to identify the information to be included and summarise it in 200 words or so. Experience obviously helps, but writing a good abstract can be accomplished by following some simple steps:

Read the original document / research, identify the key content for the abstract

As abstracts represent a concise summary of a completed manuscript or document, they should be prepared last, after the document is final and you have had the chance to review the document carefully. The key content of the abstract and the conclusions need to be agreed upon in conjunction with other authors. The key results that support any conclusions will also need to be identified and included in the final abstract.

Consult any abstract guidelines / specifications

Instructions-to-authors for scientific journals usually contain some guidance for abstract preparation. Conferences also provide their own specifications for abstracts, and abstracts that do not comply with these guidelines / specifications are normally rejected. Before writing, you should consult any available guidelines and possibly review previously published abstracts in the same journal or publication

in order to ‘get a feel’ for overall style and content. Many journals require abstracts to have a structured content, based on the full manuscript (i.e. Background (or Objectives) / Methods / Results / Conclusions), and there is normally a limited word count (for example a maximum of 200 words).

Write the abstract following any guidelines / manuscript style recommendations

Obviously the most important step is writing the abstract, and you should allow enough time for this. Rushing an abstract and not considering its content can lead to problems, and mistakes in a manuscript abstract will not impress editors or reviewers. You should adopt a similar style and wording as used for the main manuscript and you must not include information that is not included in the manuscript, as the abstract is meant to be a summary of the document.

The opening sentences of the abstract (the Background / Objectives) should ideally describe the reasons for the study: why the research was performed (the hypothesis or research question to be answered) and indicate its potential importance. This is the scene setter, highlighting what is novel about the research conducted. These sentences can normally be taken directly from the introduction of the completed manuscript with little or no alteration.

For example: ‘*Drug X is a novel receptor blocker which has shown promise as a treatment for high blood pressure (BP). In small scale, explorative studies significant reductions in BP have been observed, with little or no side effects. We have investigated the BP lowering effects of drug X in a large patient population*’.

This should be followed by a brief description of the study methods (Methods). Describe whether the study was conducted in animals, volunteers, or patients, if it was a controlled, randomised trial, along with brief descriptions of the test product / treatment regimen (including doses given if applicable), any interventions, endpoints (primary or secondary), equipment / tests used and any key statistical procedures used.

For example: ‘*This was a double-blind, randomised clinical trial performed in 240 patients newly diagnosed with mild to moderate essential hypertension, exposed to either placebo, 10 mg or 20 mg of drug X per day for 6 weeks. Daily BP assessments were made and the primary endpoint was the percentage of responders at week 6 defined as a BP goal of <140 / 90 mmHg. Secondary endpoints were....*’

You should only expand the ‘Methods’ section if novel or unusual procedures were used or if additional information is crucial to the interpretation of data. Given the limitations

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on word count it may not be possible to include all methodological descriptions; in this case it should be sufficient to briefly mention those methods that provide the key results.

The key results should follow (Results), giving the main findings of the research, including results for any described primary or secondary endpoints. It is best to give the number of observations for each result (i.e. the number of patients supplying data for any primary or secondary endpoints). The results of statistical tests should be described, as well as any key safety or toxicological findings. Do not present results if the method for obtaining them was not described in the 'Methods' section.

For example: *'The percentage of BP responders at week 6 was 5% (4 of 80 patients), 55% (44 of 80 patients) and 85% (68 of 80 patients) with placebo, 10 mg (p < 0.001) or 20 mg of drug X (p < 0.001). For the secondary endpoints....[Provide results]. Both doses of drug X were well tolerated, and the adverse events reported were similar to placebo.'*

Lastly, one or two sentences should present the conclusions of the study. You should avoid repeating the title of the document in the conclusions, and the abstract conclusions should match the conclusions of the full manuscript / document. If possible, the conclusions should disclose how the research advances current scientific knowledge or medical treatment.

For example: *'Drug X appears to be an effective treatment for high BP and it is likely to make a significant contribution to treating this condition. Further studies are required comparing Drug X with other BP lowering medication.'*

When writing the abstract, it is important that you keep it simple, with clear and concise sentences. Readability is very important and you should avoid using jargon that is not widely understood. Also consider your target audience—remember abstracts 'sell' your manuscript to the reader, encouraging them to look at the whole manuscript. Try to avoid using excessive abbreviations to cut the word count, as this does not improve readability. For conference abstracts, you can make the abstract more appealing by using visual aids such as graphs, tables, and photographs. Key references can be included in conference abstracts but must be avoided in manuscript abstracts. As a rule, the background, methods, and results sections are written in the past tense, whereas conclusions are written in the present tense.

It is also useful to keep key searchable terms in mind when you are writing the abstract. Key words are vital for the correct indexing of the abstract and for its retrieval by readers using electronic information retrieval systems. This is very important if you want your research read by the correct audience. Also abstracts should be stand-alone documents—many manuscript abstracts are viewed / published independently of the manuscript article and they should also allow for someone browsing through a database of abstracts to determine the relevance of the manuscript article and its key findings.

Check the abstract carefully

As well as checking your abstract for adherence to word counts and guidelines, you need to check readability, spelling, punctuation, and grammar. You should remove

any unnecessary information, as it does not matter if the abstract is shorter than the maximum word count. Lastly, check the abstract against the original document for correctness. Make sure that any results reported in the abstract are identical to those in the manuscript, and that the wording matches between the abstract and the manuscript / document.

Allow author review and make appropriate corrections

All the authors of a manuscript or document must be given the opportunity to review the abstract, and any corrections and ambiguities need to be clarified through review and feedback. Authors often tend to add information to abstracts, increasing the word count as they go along. Also contradictory comments—or additions by the senior author(s)—need to be dealt with. Providing guidance to authors concerning word counts can prevent excessive additions, and clear planning of content and reviews prior to writing speeds up the review process. Identifying senior author(s) as reviewers, with planned meetings to consolidate comments, is also helpful.

As a summary, abstract writing is a crucial skill for medical writers and is one that can be applied in many areas of our everyday jobs. Following some simple steps, which can be used in almost all forms of abstracting, can make the process easier, less error prone, and faster. Abstracts are an advertisement for the research described and they can have a major impact on successful publication. Their importance to the scientific community in an information-overloaded age should not be underestimated.

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Additional guidance:

The Uniform Requirements for Manuscripts Submitted to Biomedical Journals (developed by the International Committee of Medical Journal Editors, <http://www.icmje.org>) has a short section on abstracts; in addition the CONSORT (Consolidated Standards of Reporting Trials) Group has extended the current CONSORT Statement to cover abstracts [1,2].

The CONSORT guidelines list essential items for authors to consider for their abstract, and have been incorporated into the instructions-to-authors for *The Lancet*. Beware, it may not be possible to include all the items listed by CONSORT due to word limits and the requirements of individual journals (or conference requirements). However, it is wise to read these guidelines and take some messages from them!

- 1 Hopewell S, Clarke M, Moher D, Wager E, Middleton P, et al. (2008) CONSORT for Reporting Randomized Controlled Trials in Journal and Conference Abstracts: Explanation and Elaboration. *PLoS Med* 5(1): e20. doi:10.1371/journal.pmed.0050020
- 2 Hopewell S, Clarke M, Moher D, Wager E, Middleton P, Altman DG, Schulz KF and the CONSORT Group (2008) CONSORT for reporting randomised trials in journal and conference abstracts. *Lancet*: 371:281-283.