

# Writing Case Reports and Review Articles

## Case Reports

This section covers the basics of writing a case report:

- Purpose
- General considerations
- Introduction section
- Case description section
- Discussion section
- Abstract

An annotated case report that illustrates many of the concepts discussed here is included at the end of the chapter.

Edward J. Huth covers the topic of case reports in greater detail in his excellent book *How to Write and Publish Papers in the Medical Sciences* (Baltimore, Williams & Wilkins, 1990).

## Purpose

The purpose of a case report is to describe a unique or extremely unusual patient case *that has educational value to other physicians*. Most commonly, case reports are written for 1 of 4 reasons:

- To report a previously undescribed disease or syndrome;
- To report the unexpected association of 2 or more diseases, disorders, or symptoms, especially if a common cause is likely;
- To report a new and clinically relevant variation in a disease or syndrome (for example, the occurrence in an adult of a disease previously seen only in children; disease in a human caused by a pathogen previously believed to cause disease only in animals); or

- To report unexpected events encountered while treating a patient (for example, new beneficial or adverse effect of a drug).

Some journals also publish case reports on the use of radiologic imaging, pathologic analysis, or new technology to resolve diagnostic dilemmas and on new uses for existing therapies.

## General Considerations

An essential step in deciding to write a case report is to perform a thorough literature search to determine that the case is in fact unique or extremely unusual. You should keep track of where and how you searched so that you can report this information in your manuscript. The staff of the Research Medical Library can help you with your literature search if you need guidance or assistance.

You should also review the author instructions as well as recent issues of journals in which you would like to publish to find out what kinds of case reports, if any, those journals publish. Some journals publish cases as letters to the editor; others use the Introduction, Case Description, and Discussion format described below.

Because anyone familiar with a particular patient's case will likely recognize who is being discussed in the case report, many journals require that the consent of the patient or his or her family be obtained before the report can be published. All journals require that permission be obtained to publish recognizable photographs of a patient. Placing a black bar over a patient's eyes in a photograph is no longer considered adequate to disguise the patient's identity; the patient's or family's consent will still be needed in such circumstances.

The patient should be referred to throughout the article as "the patient" or as "he" or "she" and never as "the case." (It is fine to say, "We report the case of a patient with . . .") The patient's medical record number, name, or initials should never be mentioned (and such identifiers should be deleted from radiologic images or other figures used to illustrate the case).

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## Introduction Section

The Introduction section of your case report should establish the rationale for reporting the case, including its importance. The references that support the rationale should be cited; if appropriate, you can cite review articles instead of individual cases or studies to minimize the number of references. (Many journals have strict limits on the number of references permitted in case reports.)

The Introduction should end with 1 or 2 sentences stating the purpose of the case report. This statement should answer 2 questions: why is this case being reported, and how does it contribute to medical knowledge (in other words, what will readers get by reading it)?

The following example answers these questions well:

Although peripheral arthritis is the most common extraintestinal manifestation of inflammatory bowel disease, it is very rarely addressed in the orthopaedic literature. The overwhelming majority of patients with inflammatory bowel disease present with gastrointestinal symptoms and do not have any joint involvement until much later. We present the case of a patient who had joint pain and swelling but lacked any sign of gastrointestinal involvement. After 5 months of workup, the patient was diagnosed with Crohn disease, and the joint symptoms improved with appropriate medical treatment. We believe that inflammatory bowel disease should be considered in the differential diagnosis of joint pain and swelling. (From Olszewski MA et al. Knee pain and swelling due to Crohn disease. *J Bone Joint Surg Am* 87:1844–1847, 2005.)

## Case Description

The next section is a description of the case being reported. This section is typically labeled “Case Report,” “Case History,” or “Case Description” (depending on journal style).

The Case Description section should tell a story. You should include all relevant data to enable readers to understand the case and understand how you reached the diagnoses and treatment decisions, but you should omit details not directly relevant to the decisions or outcomes.

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The case is usually presented in chronological order. It is important to keep the time frame clear for readers, especially if the case starts with referral to our institution and then requires a jump back in time to events that happened earlier. If the patient was treated at multiple institutions, you should make clear what was done at our institution.

The best sequence in which to present the details of the case will of course depend on the particular case, but a common order for a case report is:

1. Presenting signs, symptoms, and complaints;
2. Relevant medical history and relevant family medical history;
3. Other personal history relevant to the case (for example, tobacco use in a patient with lung cancer);
4. Medications being used;
5. Relevant results of physical examinations, laboratory tests (include normal range for unusual tests), and radiologic imaging;
6. Differential diagnosis and preliminary diagnosis if different from final diagnosis (and any tests and treatments resulting from the preliminary diagnosis);
7. Final diagnosis (and how it was determined);
8. Treatments;
9. Outcome;
10. Follow-up to present.

If the case requires reporting many data, a table may be an efficient way to present those data.

Cases that focus on histopathologic findings, results of specialized laboratory studies, and/or genetic findings may need separate sections for those findings (such sections typically appear after the Case Description section or as subsections of the Case Description section) or even separate Methods and Results sections if the tests are unusual or uncommon.

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## Discussion Section

The Discussion section interprets the case for readers, convinces readers that your diagnoses and interpretations are correct, and states the implications of the case. If you claim that your case is the first such case reported, you should also describe your literature search in this section (including what languages of publications you considered). [Note: It is always safest to add “to our knowledge” to any claim of being first.]

If other related cases have been reported, you should indicate in the Discussion how they are similar to and different from your case.

This section is also where you convince readers that your diagnosis or interpretations are correct and show that you considered other possibilities. If applicable, you should briefly discuss the differential diagnosis, including how you know your diagnosis is the correct one and why other possible diagnoses were rejected. (For an example, see the annotated case report at the end of the chapter.) You should always be sure to address any evidence that contradicts your diagnosis or interpretations.

The Discussion should also make clear your take-home message for readers. What should they consider doing differently as a result of reading this case (for example, when encountering a particular set of symptoms and test results in a particular patient setting, should they consider an additional diagnosis or a new treatment)? Or what shift in medical or scientific knowledge is suggested by this case, and what is the next step in advancing that knowledge?

## Abstract

Many journals require a brief abstract for each case report. The Abstract of a case report is usually unstructured (that is, contains no subheadings) and consists of 1 short paragraph. The Abstract should summarize the key points in the case, including the purpose (from the Introduction), unique features, final diagnosis, treatment, outcome (all from the Case Description), and take-home message of the case (from the Discussion). The Abstract should not include statements such as “X will be described” or “Y will be discussed”; these are not helpful to people reading your Abstract on-line.

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## References for This Section

Huth EJ. How to Write and Publish Papers in the Medical Sciences. 2nd edition. Baltimore, Williams & Wilkins, 1990.

Iles RL. Guidebook to Better Medical Writing. Olathe, KS, Island Press, 2004.

Buckingham TA. Publication of case reports. Writing Medical and Scientific Papers 2(2):3-4, 2000 (electronic newsletter available at [http://www.lifescipub.com/vol2\\_no2.htm](http://www.lifescipub.com/vol2_no2.htm); accessed July 13, 2005).

## Review Articles

A good review article summarizes, synthesizes, and critiques the literature on a topic. Review articles may be descriptive—providing an overview of a topic or field, similar to a chapter in a textbook—or evaluative—analyzing data from many sources to answer a research question—or somewhere in between.

This section covers the basics of writing a review article:

- Defining purpose, audience, and scope
- Collecting the literature
- Writing the introduction section
- Writing the main text
- Citing references
- Writing the abstract

A well-written sample review article is included at the end of the chapter.

### Defining Purpose, Audience, and Scope

Before you begin writing a review article, you must define your purpose, audience, and scope. In many cases, review articles are written in response to an invitation from a journal's editor. In those cases, the invitation usually defines the purpose, audience, and scope—but if it does not, you should call or e-mail the editor to clarify them. If you are writing an unsolicited review article, call or e-mail the editor of the journal you want to submit it to and ask whether such an article would be welcome. If the journal has requested a review on the same topic from another author recently, the editor probably won't be interested in your article (and you can save time by immediately preparing to submit it to another journal). If the journal is interested, the editor can help you focus the article to better meet the journal's needs.

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## Collecting the Literature

Be systematic in determining which studies you will discuss in your review article. Determine the criteria for inclusion and exclusion ahead of time, and be prepared to describe what literature you reviewed in the article itself (e.g., language, years, databases searched, and any other inclusion or exclusion criteria). You may wish to consult colleagues or a medical librarian to help you formulate your search criteria and identify relevant studies.

Be sure to include relevant information about all sides of an issue, even if you don't agree with some sides.

Keep copies (paper or electronic) of all articles you use in writing your review. This will make it easier to answer any questions that may arise during preparation or review; to help you double-check descriptions in your paper to ensure you have not inadvertently copied the wording of the original; and to verify the accuracy of your references.

## Writing the Introduction Section

Begin the introduction by briefly establishing the need for the review article. For example, is there debate over the best way to treat a disease? Have there been many recent advances in a field—many of which may not be widely known?

Next, state the purpose of your article. The purpose could be to answer a specific question, to provide an overview of a topic or field, or to do something else. In addition to describing what your article will cover, it may be appropriate to say what your article will not cover (and where this can be found). Be sure that the stated purpose is broad enough to encompass all the material you plan to include but does not promise more than your article will deliver.

## Writing the Main Text

Be sure you include information to cover all aspects of your stated purpose, but don't include information not related to the stated purpose.

Make an outline of the main points you plan to cover. Once you've decided on a logical order, the outline can guide you in writing subheads. Chronological order—the order in which information was discovered or the order in which information will be used—works well in many

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articles. For example, in a clinical review of gastric cancer, you might use the order introduction, etiology, diagnosis, treatment of disease (by stage), follow-up, and conclusions.

Use subheads generously, but don't use so many that each section contains only one or two paragraphs. Think about the broad topics readers would want to be able to find information about quickly, and make these your top-level subheads. But don't use subheads that are so broad that they essentially repeat the title of the article.

For each section, summarize the major points of relevant studies in your own words. Don't give lots of details on individual studies in the text; if details on multiple studies are needed, present them in tables. In the text, focus on the conclusions of those studies and how the studies agreed with or differed from each other. If you disagree with the conclusions of a study's authors, diplomatically explain why. Above all, let the readers know what you think they should get out of the information—that is, give them the take-home message. For example, if some studies showed a benefit from a treatment and others showed no benefit, should the treatment be used in general practice, only in clinical trials, or not at all? If there is not enough information available to draw conclusions, acknowledge that. Always remember, a review article should not be just a collection of abstracts or summaries of previously published studies—rather, it should help readers understand what those studies, considered together, mean.

Make sure all information in a section relates to the topic of that section. For example, readers would not expect to find information on diagnostic imaging in an “etiology” section.

Don't use the same wording as other authors when talking about their findings. Put the information into your own words. And don't paste material you prepared for another article into your review. If the material is relevant, boil the information down to the essential facts, and use new words to describe them.

Use transitional words and phrases between sentences, paragraphs, and sections. This takes some of the burden of interpretation off the readers. For example, if 2 studies' findings disagree, you might use the phrase “in contrast” or “on the other hand” to introduce the second study—that warns the readers to expect differences between the 2 studies' findings.

Identify any remaining gaps in knowledge, and if appropriate, suggest avenues of research to fill those gaps. If you are aware of ongoing or planned studies that address these gaps, consider mentioning the studies.

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End with a conclusion that is based on the material you have presented. If your purpose was to answer a question, give the answer that the review has led you to. If your purpose was to encourage certain practices, state what practices you believe should be followed.

## **Citing References**

Use EndNote or other reference management software to simplify the processes of citing references in the text and preparing the reference list. Copying the citations directly from PubMed can help ensure their accuracy—but regardless of what methods are used, you are responsible for the accuracy of all your references.

Whenever possible, cite original sources rather than secondary sources (for example, cite papers about individual studies rather than someone’s review article that discussed several studies). Secondary sources aren’t always accurate.

Follow the publisher’s guidelines for citation and reference styles.

## **Writing the Abstract**

Follow the publisher’s instructions for what type of abstract, if any, to include and how long the abstract should be. If an abstract is required, include the purpose of your article and the take-home message from the major sections plus the conclusion. Avoid nonhelpful statements such as “The options for therapy will be discussed” or “The controversies will be reviewed.”

## **Miscellaneous Advice**

For a requested review article, it’s important to meet the deadline in the request letter and to stick to the topic requested. If you find that you will not be able to meet the original deadline, contact the person who issued the invitation before the deadline passes to negotiate a new due date. If you find that you cannot address the topic requested but have ideas on something else that would be useful, contact the requestor immediately to discuss your ideas.

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For information on writing systematic meta-analyses of the literature, visit the Cochrane Collaboration's web site:

<http://www.cochrane.org/training/authors-mes>.

For more general advice on writing a literature review, visit the University of Toronto Health Sciences Writing Centre's web site:

<http://ctl.utsc.utoronto.ca/twc/advice>.

## References for This Section

Gastel B. Journal submissions other than scientific papers. In Witte FM, Taylor ND (eds). *Essays for Biomedical Communicators. Selected AMWA Workshops, vol. 1*. Rockville, MD: American Medical Writers Association, 2001.

Huth EJ. *How to Write and Publish Papers in the Medical Sciences*. 2nd edition. Baltimore: Williams & Wilkins, 1990.

## Sample Case Report

[Clark MA et al. Soft-tissue sarcomas in adults. N Engl J Med 353:701–711, 2005.](#)

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