



# How to write case reports in medicine

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Medical research has become an important part of providing care to patients. Case reports published in medical journals can communicate information to the medical community about rare or unreported features, conditions, complications, or interventions. Case reports are generally short, focusing on key components such as a summary and introduction, case presentation, and discussion. Authors now have access to free, continuously updated case reports of different types from multiple journals. This review introduces the process and mechanisms for how and when to prepare a case report. We briefly review the editorial process of each of these complementary journals, along with author anecdotes, hoping to inspire authors to write and continue writing case reports; and discusses the essentials of a case report, aiming to provide guidelines for improving medical writing skills.

**Keywords:** Case reports; Guideline; Medical writing; Publications

## Introduction

From the Hippocratic era to date, physicians from all specialties have described interesting cases [1,2]. For most researchers, case reports can be the first effort to publish in medical journals, and it is considered a useful practice in scientific writing due to the similarities in its basic format [3]. Notwithstanding the variety of case reports, all reports represent the reader's clinical symptoms, diagnostic approaches, or therapeutic alternatives for a disease [4]. Thus, case reports should be educational as well as contain a useful practical message [5]. While some experts ignore case reports in the structure of evidence-based literature of medicine, these publications allow you to share anecdotes of individual clinical practice, providing a substantial source of information for optimal patient treatment. Randomized controlled trials are at the top, followed by systematic reviews and meta-analyses, prospective experimental trials,

observational studies, case-control studies, and case series in general evidence-based medicine. However, in the treatment guideline and updated experts' consensus, systematic reviews and meta-analyses are considered at the top of the hierarchy of evidence-based medicine [6]. On the other hand, it has been pointed out by others that carefully written and interpreted case reports play an important role in the advancement of medical knowledge and education [7]. A previous report [8] listed five potential contributory roles of case reports: (1) description and recognition of a new disease; (2) rare manifestations recognition of a known disease; (3) mechanism elucidations of a disease; (4) adverse or beneficial effects detection of medications; and (5) medical education and deep gratitude.

The number of case reports published annually has increased over the past 20 years [9]. However, the quality of published case reports has been inconsistent. A systematic assessment of the quality of case reports revealed frequent

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technical and editorial errors. Common problems in case reports include a lack of description of symptoms, failure to identify the main outcomes, and failure to draw conclusions [10]. Thus, case reports need to be improved in several ways.

To address this issue, Gagnier et al. [11] developed the CARE (CAse REport) Statement and Checklist, which includes reporting guidelines for case reports. The CARE guidelines consist of a 36-item checklist that provides a comprehensive framework for enhancing the transparency and accuracy of reporting [12]. The CARE guidelines are available online on the CARE Case Report Guidelines homepage (open access via <https://www.care-statement.org/>) and have been published in several journals.

The aims of this review are to give guidelines for beginner authors to write new case reports. Although these guidelines to write case reports are not sufficient to become a great writer, they do help inexperienced authors exercise and develop the basic skills needed in medical publishing.

## General principles of case reports

Case reports are generally short, focusing on key components such as summary & introduction, case presentation, and discussion about detailed review and conclusions [13]. Figures, tables, illustrations, and graphs can be supplementary and enhance the flow and clarity of the case report. Differently from original papers, the authors do not need to follow the usual format of manuscript organization (i.e., introduction, methods, results, and discussion) [5]. Since the format of case reports varies widely from journal to journal, authors should recognize the guidelines of journal where they want to publish. A case report is a design to study for unexpected or completely new cases, each with an individualized report of the patient's results, clinical progression, and outcomes. Such a report might also include a review of existing studies.

Some scientists have classified case reports as designing a study qualitatively, while other scientists have considered them designing a study quantitatively or with combined method design [14]. In addition, considering most approaches for research in medical science, case reports can be classified as a new discovery or corroboration. There are several types of case reports and they are organized into the following categories: a single case, >2 combined cases, or a

series of multiple cases. Case reports are usually presented retrospectively. However, they can be prepared prospectively by using a new diagnostic approach or guidelines to discover new cases in a certain health situation [15]. Table 1 shows examples of case types considered suitable for report [1]. Notwithstanding these limits to publish, All case reports have the potential to be published if they are genuine, lead to a gradual advance in medicine, or have educational value despite not containing new discoveries.

## Format for writing a case report

The word count for case reports varies among journals. However, Authors should be aware that they should not exceed 1,500 words in general. And then, case reports should be concise, concrete, and organized, embracing sufficient data to inform relevantly [1]. If the journal required a shorter version, the discussion section of the article can be shortened. *Kosin Medical Journal* (KMJ) requires the manuscript to include in a total of six tables or figures. For human cases to report, the case description should include a statement regarding informed consent to publish about clinical data. The submission guidelines of KMJ are available online on the KMJ homepage (open access via <https://www.kosin-medj.org/authors/authors.php>).

### 1. Title

The readers see the title page as first step to a case report. Therefore, the title should be attractive, clear, organized to grab the reader's attention to the topic. An ideal title should not sound too broad or artificial, and should be understandable to the reader [16]. A title can be placed on the first page of the manuscript or as a separate file labeled "title" depending on journals. Unnecessary words, double

**Table 1.** Criteria for the publication of a case report

Unexpected or rare adverse events
Drug-related side effects
Unexpected or abnormal manifestations of a disease
New link in the disease progression
New development, diagnosis, and/or treatment of emerging diseases
New associations between various diseases and symptoms/signs
Unexpected side effects during treatment
Consequences that explain the possible etiology of a disease or side effect

meanings, and abbreviations should be avoided in the title, and the phrase “case report” should be included. Beneath the title and on the same page, all the authors, their affiliations, and email addresses should be listed. Most reports for case are not written by a single author. However, if the number of authors exceeds six, some publishers may return case reports for publications back. For KMJ, there is no limitation of number of authors. Finally, one author should be assigned the role of “corresponding author,” communicating with editorial board members of the journal, and this author should provide contact information to the journal. Corresponding authors must submit a case report to receive comments on the case report from journal editors, and the corresponding author’s name must be included in the list.

## 2. Abstract

This is the most important section of the report, since it will be freely accessible for others to read when retrieved from any medical database during a relevant search. Similar to other types of articles, case reports should include a short summary of the contents of the case report. Initialisms, acronyms, and informal abbreviations should be avoided wherever possible or kept to an absolute minimum and accompanied by proper definitions. The abstract should not contain references and preferably should be written within 250 words, although the word limit differs among journals, indicating the importance of submission guidelines. The abstract usually has three parts: background, presenting case, and conclusion. The background should clearly explain why this unique case should be reported. The conclusion should be brief, and explain the lessons learned from this case report and its impact. The abstract should provide information that is easily searchable in electronic databases and should help researchers draw attention to the case report [17].

## 3. Keywords

Keywords are extremely important to index the case report and should contain minimum of three and a maximum of 10 words or phrases. Keywords should be selected very carefully to allow optimal retrieval during research. In KMJ, there should be three to five keywords listed under the abstract on the same page. For selection of keywords, it is advisable to reference the Medical Subject Headings (MeSH) in PubMed or <http://www.nlm.nih.gov/mesh/>

MBrowser.html.

## 4. Introduction

In this section, a definition and brief description of the pathology, including common presentations and disease progression, are discussed, explaining the background of the selected topic. The introduction should be concise and get the reader’s interest by providing background information about its importance and an explanation of key contents of the case report. This is followed by describing about the case briefly to be reported and its significance of this case compared to previous studies. Although a comprehensive review of literature is covered in the discussion section, a brief description of the literature is available here [5].

## 5. Case presentation

A case summary or description focuses on any case presentation. The case should be presented over time with sufficient data to enable the reader to understand the author’s own conclusions about the validity of the case. A clear figure and data for the patient’s cases should be provided with sufficient details and explanation [14]. The demographic information about cases should be described, in details that could confirm the patient’s identity. Case presentation should begin with major complaints and detailed medical conditions and, including past medical history, social and occupational history, medications. The results from the physical examination should be presented in brief, along with laboratory results, images, and analyses. The differential diagnosis approach and rationale for treatment should be described, with the follow-up data and conclusions. Over-interpreted approach should be avoided. This section can be divided into smaller subsections if necessary, and relevant images and tables should be added to make the case easier for the reader to understand. A clinically significant negative outcome should be mentioned. Authors’ interpretation or reasoning should be avoided in the body of the case report. Tables and figures should be used to reveal chronological findings or to compare observations using different methods. All figures require a concise and definite explanation. For cases of using surgical or pathological data, The authors are encouraged to provide about the surgical procedure and a concrete pathology results [17].

Crucially, patient confidentiality must be preserved. In the first sentence, mentioning patient demographics, in-

cluding race, age, gender, and occupation, is recommended but not required. Patient initials, and other records to identify must be avoided to reduce the possibility of identification.

## 6. Discussion

The discussion explains the author's rationale and approach in detail with information about the uniqueness of the case. It also helps to make summary of the main points, compare the uniqueness of case with previously reported cases, draw new information and practical applicability, and clinically useful conclusions [13]. When comparing the new case with existing knowledge, the author should concisely summarize what was previously well known. And elucidate the novelty of these reported cases from previously reported ones and why it is worth reading and publishing. Case report discussions are not intended to provide a comprehensive literature data or all references citations. Therefore, the authors should reconfirm all citations of references concretely. Authors must be aware of limitations of the case and explain each of limitation and importance of those. The values added by case reports to update existing literature and data should be emphasized and mentioned together with the lessons learned from the case, especially if there is a potential for new recommendations for patient diagnosis or management [13,18].

## 7. Conclusion

The conclusion section should include a concise statement to explain the importance and relevance of the case, which should relate to the purpose of the paper. The author should conclude the key findings from case reports with verified references in the discussion. A brief explanation of lessons learned from case reports may be included with concrete evidence and recommendations. The authors should conclude briefly within one paragraph [19]. Case reports have far less potential impacts on clinical practice than well-organized prospective original research articles. However, case reports are of value with newness and uniqueness. Researchers can share individual clinical practices, increase awareness of unique manifestations, and provide instructive messages through case reports. Case reports with well-written and proper structure will contribute to the medical science and enhance the current evidence-based medicine.

## 8. References

The references listed at the end of the case report should be carefully selected based on relevance. Readers who wish to obtain more information than from the case reports are able to get more information from references and the references should support key findings in the case reports [20]. There are some restrictions in some journals about the number of references to 15. However, KMJ recommends no more than 20 references for case reports.

## Conclusions

Case reports are of value as source of information with newness and uniqueness and enable researchers to provide their clinical practices on individual cases, increase knowledge of unique manifestations, and convey important messages for education. Case reports will continue to provide new research ideas through hypothesis generation, contribute and enhance knowledge of the medical science in the present evidence-based medicine. Although these guidelines to write case reports are not sufficient, this review will help beginner authors to practice and achieve their writing skills improvement for writing or case reports in medicine.

## Article information

### Conflicts of interest

Sung Il Im is an editorial board member of the journal but was not involved in the peer reviewer selection, evaluation, or decision process of this article. No other potential conflicts of interest relevant to this article were reported.

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