

# Analysis of the Reporting Requirements of Clinical Case Reports Dedicated Journals: Towards Updating the CARE Guideline

Abolfazl Taheri<sup>1</sup>, Peyman Adibi<sup>2</sup>, Alireza Abbasi<sup>3</sup>, Mojtaba Sabbagh Jaffari<sup>4</sup>, Alireza Rahimi<sup>5</sup>

<sup>1</sup>Department of Medical Library and Information Sciences, School of Management and Medical Information Sciences, Isfahan University of Medical Sciences, Isfahan, Iran, <sup>2</sup>Integrative Functional Gastroenterology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran, <sup>3</sup>School of Engineering and Information Technology, University of New South Wales, Canberra, Australia, <sup>4</sup>School of Computer Engineering, Vali-e-Asr University of Rafsanjan, Rafsanjan, Kerman, Iran, <sup>5</sup>Clinical Informationist Research Group, Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

## Abstract

**Background:** Following personalized medicine and the development of e-publishing, a large number of case report–dedicated journals have emerged. But the lack of integrated guidelines is a major obstacle to the quality of this evidence. The purpose of this study is to analyze the reporting requirements of case report–dedicated journals to update and strengthen the CARE guidelines.

**Material and Methods:** Quantitative and qualitative research approach has been done using the content analysis method. All case report–dedicated journals were selected from Scopus (54 out of a total of 68 journals). By referring to these journals' websites, all the contents of the authors' guideline section and two sample articles were examined as a unit of analysis. Quantitative data includes frequency and percentile; qualitative data was conducted through open coding, creating categories, and abstraction.

**Results:** 51% of journals are related to Elsevier and Hindawi publications. 14.8% of journals have been launched in the form of companions. 52% of journals endorse the CARE guidelines. Among the CARE elements, title, consent form (100%), discussion, abstract (94.4%), and introduction (90.7%) had the most frequent elements, and timeline and patients' perspective had the least repetition in the authors' guideline. Also, 19 new reporting elements and 27 types of case reports were identified.

**Conclusions:** Improving the reporting and content quality of case reports is very important to benefit from knowledge synthesis services. Medical journals publishing case reports should follow a more integrated process. An updated version of reporting guidelines needs to be available for publishers and editors of journals.

**Keywords:** Authors' guideline, authors' instructions, CARE, case reports, guideline as topic, medical journalism, reporting guideline

**Address for correspondence:** Dr. Alireza Rahimi, Clinical Informationist Research Group, Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran.

E-mail: [alirezarahimi.kh@gmail.com](mailto:alirezarahimi.kh@gmail.com)

**Submitted:** 15-Dec-2021; **Revised:** 08-Feb-2022; **Accepted:** 12-Feb-2022; **Published:** 25-Feb-2023

## INTRODUCTION

Due to the importance of personalized medicine and the development of electronic publishing, the publication of case reports was revived and became popular. Case report–dedicated journals emerged dramatically because of the limitations of high-impact journals in scientific competition. Since

the publication of the first dedicated case report journal indexed in PubMed in 2007, until 2015, more than 160 dedicated case report journals have been launched.<sup>[1,2]</sup> Most of these journals are published as open access independently

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** [WKHLRPMedknow\\_reprints@wolterskluwer.com](mailto:WKHLRPMedknow_reprints@wolterskluwer.com)

**How to cite this article:** Taheri A, Adibi P, Abbasi A, Sabbagh Jaffari M, Rahimi A. Analysis of the reporting requirements of clinical case reports dedicated journals: Towards updating the CARE guideline. *Adv Biomed Res* 2023;12:41.

Access this article online	
Quick Response Code: 	Website: <a href="http://www.advbiores.net">www.advbiores.net</a>
	DOI: 10.4103/abr.abr_391_21

(such as *BMJ Case Reports*) or as companions (so-called sister) (such as *JAAD Case Reports*).

In the last decade, the publication of case reports has increased significantly and various types such as clinical vignettes, clinical images, and perspectives have been formed.<sup>[3,4]</sup> Now, it seems that each journal has special processes for publishing case reports and no uniform guideline is available.<sup>[3,5]</sup>

To improve the quality of the reporting and the consistency of this evidence, the CARE guidelines were introduced in 2013. These guidelines were developed through a consensus-based approach involving 27 participants, and a 13-item checklist for reporting clinical cases.<sup>[6]</sup> Although it was a key step in standardizing and increasing the accuracy, transparency, and usefulness of these studies, the results indicate that the quality of case reports in various fields and journals has not improved.<sup>[5,7-9]</sup>

One of the important reasons for the low quality of case reports is the lack of proper explanation of the CARE guidelines and reporting requirements in the authors' guidelines of journals.<sup>[9,10]</sup> The authors' guidelines act as the first link between the authors and the journals, and should cover the exact aspects and requirements of reporting. In dedicated journals, acceptance of guidelines and tools such as those registered in the EQUATOR ([www.equator-network.org](http://www.equator-network.org)) network is doubly important due to the publication of a certain range of clinical evidence. To the best of our knowledge, there is no literature on the analysis of case report–dedicated journals to evaluate the CARE guidelines.

Based on what has been mentioned above, in this study, we aim to answer the following questions:

- How much emphasis is placed on following a reporting guideline such as CARE in the authors' guideline of case report–dedicated journals?
- Are the reporting requirements and sections in the authors' guidelines of dedicated journals compatible with the CARE guideline?

By addressing these questions as part of a PhD project to develop a more comprehensive reporting guideline for case reports, it can be possible to determine the extent to which the CARE guideline is followed in dedicated journals, and identify the new reporting elements that are emphasized in these journals.

## MATERIAL AND METHODS

In the present study, the authors' guidelines of case report–dedicated journals indexed in the Scopus database during February and March 2021 were analyzed by

Qualitatively-driven or qualitative-dominated mixed methods. Qualitative-dominated mixed methods is a type of mixed research in which one relies on a qualitative, constructivist, poststructuralist-critical view of the research process, while concurrently recognizing that the addition of quantitative data and approaches are likely to be beneficial for most research

projects. In this study, the qualitative strand was implemented in an inductive–simultaneous design, where the core component was qualitative and the supplemental component was quantitative. In this method, qualitative content analysis has a superior or dominant role, regardless of its point in time, as it may precede or follow a subordinate quantitative strand.<sup>[11]</sup>

In order to identify journals in the Scopus database in addition to the SCImago portal, the source title section of the Scopus database was also searched. Finally, by removing 14 journals (total = 68) for reasons such as changing the name and goals, impossibility to access the homepage journal link, banning publication, and incompatibility with the medical field; authors' guidelines of 54 journals were analyzed. These journals are exclusively dedicated to publishing case reports, clinical images, and case series in all medical specialties.

### Units of analysis

In this study, text, image, table, templates, and PDFs in the authors' guidelines are considered as units of analysis. In addition to the authors' guidelines of the journal, two sample case reports from each journal were reviewed. In this regard, all the content in the authors' guidelines, which specifically addressed the issues related to reporting a case report article was considered as a unit of analysis. It should be noted that the analysis of qualitative data was conducted through open coding, creating categories, and abstraction.<sup>[12]</sup>

### Data extraction and analysis

The author guidelines of these journals for the analysis were uploaded to Citavi software. All guidelines were screened, categorized, and tagged by the first author (AT) and controlled by a second author (PA) and last author (AR).

To organize the qualitative data in Citavi, deductive coding was used based on the CARE guideline elements. Deductive or concept-driven coding is used when categories are derived from a theory, literature, or research question.<sup>[13]</sup> However, due to the rich data that the author guidelines provided, some data-driven codes derived from the analysis were also considered. Data-driven or inductive coding is used when there is a need to continuously organize and systematize codes, and where there is a need to keep the codes open until saturation occurs.<sup>[13]</sup>

Quantitative data related to study objectives was entered in Excel. Quantitative data included the subject, journal type (companion/sister or none), impact factor and quartiles, information about reporting guideline adaptation, CARE and None CARE elements frequency, publisher, typology of Case reports, and endorsement of reporting guidelines. Endorsement of CARE guidelines was broadly defined as “Recommended” and “Required”.<sup>[14]</sup> We did not differentiate between two levels and considered all as one.

## RESULTS

The findings showed that Elsevier publishing company with 15 dedicated case report journals has the largest impact on

publishing case report journals. This publisher, together with Hindawi (with 13 journals), publishes more than half of the case report–dedicated journals (51.9%) [Table 1]. Karger Publishers also ranks third in dedicated journal management with 11% (6 journals). In this way, it can be said that a small number of publishers lead the publishing movement of specialized journals in the field of science. Other well-known medical publishing companies that work in the field of publishing case report journals are ProQuest, Sage, Springer, Ovid, BMJ, and Wiley. Also, six associations along with one university (Oxford) are seen among publishers. In total, 14% of these journals are published by associations and universities.

Another finding in this study is the publishing model of journals. In reviewing the journals, it was found that these journals followed two models of independent and accompanying publications (the so-called sister). Companion or sister journals are under the supervision of a reputable medical journal. 18.4% of journals (8) are companions or sisters. The scientometric information of the main journals for these 8 companions is shown in Table 2. Quartile (Q) and Impact Factor (IF) indices are based on the 2019 JCR report.

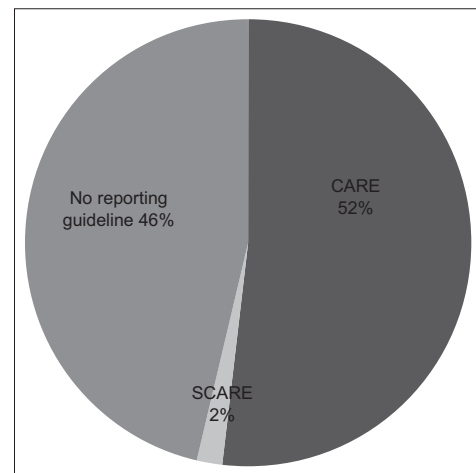
According to Table 2, all journals that have launched a companion case report journal (except no. 8) have a scientometric index in the JCR database. These journals are in the first to third quartiles of impact factors in their areas.

To answer the first research question, Figure 1 shows that 52% of journals (28) state in their author’s instructions section that endorsed authors should follow the CARE guidelines when writing case reports. The Surgical CAse REport (SCARE) guidelines is only endorsed in the *International Journal*

*of Surgery Case Reports*, and other journals (46%) did not mention any guidelines for writing case reports.

The rate of CARE adaptation in the journals according to the type of publications, subjects, and publishers is shown in Table 3. According to the findings, all journals published by Hindawi, Karger, Sage, and BMJ follow the CARE guidelines for writing case reports. Some journals published by Elsevier, ProQuest, and Springer are also in this group. Three associations are also familiar with this guideline and they consider it necessary to follow its elements to publish evidence in their journals.

In order to answer the second research question, based on the adaptation of requirements in the author’s instructions section



**Figure 1:** Frequency distribution of reporting guideline adaptation in case report–dedicated journals

**Table 1: Frequency distribution of publishers of case report–dedicated journals**

Type	Publisher	Frequency	%	
Publication Companies	Elsevier	15	27.8	
	Hindawi	13	24.1	
	Karger	6	11.1	
	ProQuest	2	3.7	
	Sage	2	3.7	
	Springer	2	3.7	
	Ovid	1	1.9	
	BMJ	1	1.9	
	Wiley	1	1.9	
	International Scientific Information, Inc.	1	1.9	
	EduRad Publishing	1	1.9	
	LookUs Scientific Inc.	1	1.9	
	Associations and universities	Oxford University Press	8	14.8
		Bioscientifica Ltd		
European Society of Cardiology				
European Federation of Internal Medicine (EFIM)				
International Anesthesia Research Society				
American College of Cardiology Foundation				
Microbiology Society				
Total		54	100	

**Table 2: Scientific indicators of main journals that have companion case report journals**

Sister/Companion Journal	Main Journal	Quartile (Q)	Impact Factor (IF)
JAAD case report	JAAD	1	8.277
Heart Rhythm Case Reports	Heart Rhythm	1	5.731
International Journal of Surgery Case Reports	International Journal of Surgery	1	3.357
JCRS Online Case Reports	Journal of Cataract & Refractive Surgery	2	2.689
Journal of Pediatric Surgery Case Reports	Journal of Pediatric Surgery	2	1.919
Case Reports in Perinatal Medicine	Journal of Perinatal Medicine	3	1.614
Otolaryngology Case Reports	American Journal of Otolaryngology	3	1.267
Journal of Clinical and Translational Endocrinology Case Reports	Journal of Clinical and Translational Endocrinology	ESCI	---

**Table 3: Frequency of dedicated journal based on (no) CARE endorsement**

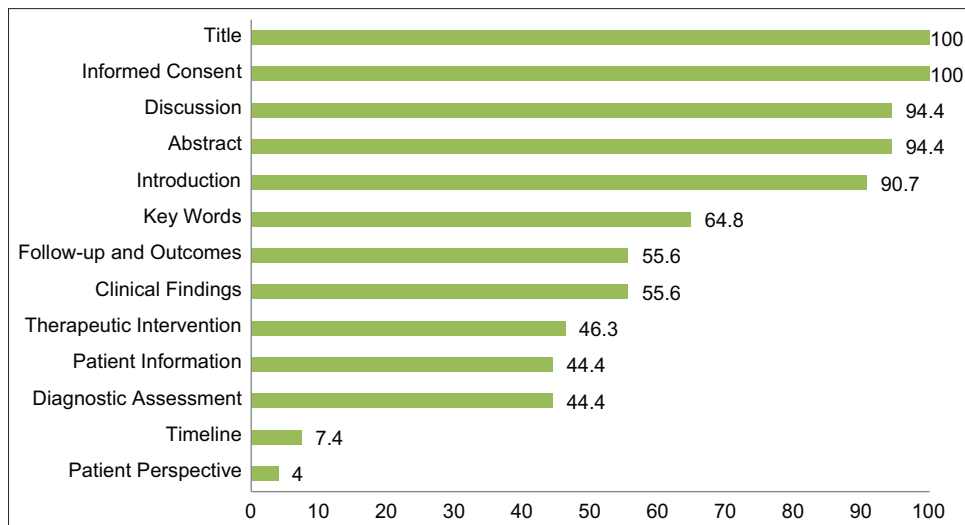
#	CARE endorsement	No CARE endorsement
Publication companies	Hindawi (13/13)	Ovid (0/1)
	Karger (6/6)	Wiley (0/1)
	Sage (2/2)	International Scientific Information, Inc. (0/1)
	BMJ (1/1)	EduRad Publishing (0/1)
	ProQuest (1/2)	LookUs Scientific Inc. (0/1)
	Springer (1/2)	
Associations and universities	Elsevier (3/15)	
	European Society of Cardiology (1/1)	Microbiology Society (0/1)
	European Federation of Internal Medicine (EFIM) (1/1)	Bioscientifica Ltd (0/1)
Subjects	International Anesthesia Research Society (1/1)	American College of Cardiology Foundation (0/1)
	Anesthesia (2/2)	Oxford University Press (0/2)
	Dermatology (2/2)	Emergency Medicine (0/1)
	Obstetrics and Gynecology (2/2)	Pediatrics, Perinatology, and Child Health (0/1)
	Oncology (2/2)	Perinatal Medicine (0/1)
	Neurology (1/1)	Urology (0/1)
	Pathology & Forensic Medicine (1/1)	Pulmonary and Respiratory Medicine (0/2)
	Psychiatry (1/1)	Radiology Nuclear Medicine and Imaging (0/2)
	Gastroenterology (1/1)	internal medicine (0/2)
	Immunology (1/1)	Microbiology (0/3)
	Safety Research (1/1)	
	Critical Care (1/1)	
	Dentistry (1/1)	
	Cardiology (2/3)	
	Nephrology (2/3)	
	Endocrinology (1/2)	
	Otorhinolaryngology (1/2)	
	Respiratory & Pulmonary Medicine (1/2)	
	General (4/8)	
	Surgery (1/2) -- SCARE endorsed	
Ophthalmology (1/3)		

of journals with CARE elements, the findings are reported in two main sections. First, what percentage of journals covers the 13 elements of CARE [Figure 2], and whether there are new elements in the authors' instructions that are not included in the CARE guidelines [Figure 3]. The second section is related to identifying the types of case reports that are published in journals [Figure 4].

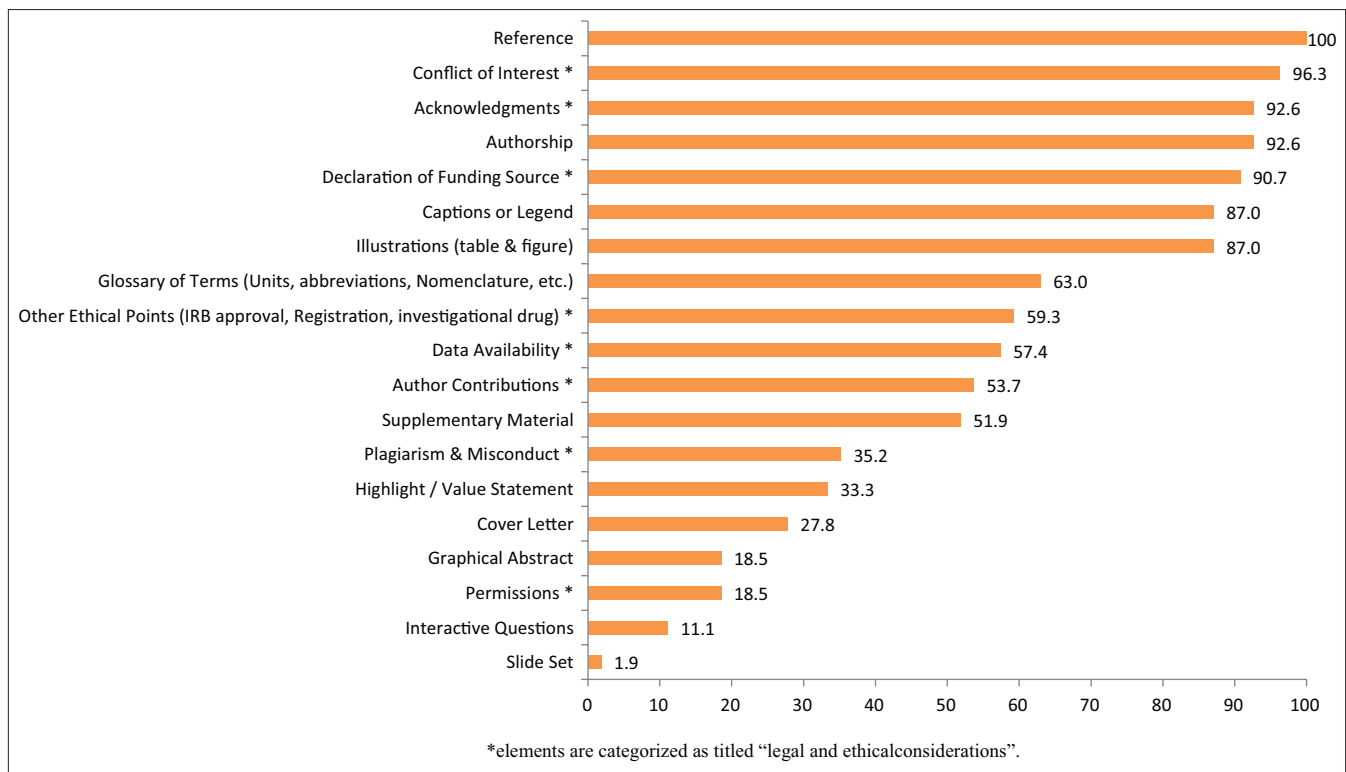
Five reporting elements of CARE, title, consent form (100%), discussion, abstract (94.4%), and introduction (90.7), were the most frequent elements, which is emphasized in the authors'

instructions. Whereas, the emphasis on timeline and patients' perspectives—7.4% and 4%, respectively—is the lowest among the elements. Thus, in the authors' instructions, little advice has been given on the adaptation of these elements. The presence of other elements varies above 40% and less than 65%. So, if 75% is considered as the optimal level, only five elements have been endorsed or advised in at least 75% of journals.

19 new reporting elements were identified in the authors' instructions [Figure 3]. Eight of these elements relate to ethical



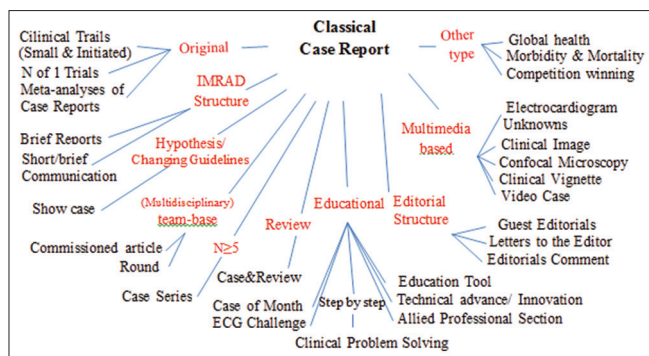
**Figure 2:** Percentages of case report–dedicated journals which cover CARE elements



**Figure 3:** Percentages of no-CARE reporting items identified in authors' guidelines in dedicated journals

and legal considerations in writing case reports. This finding shows that little attention has been paid to such considerations in CARE guidelines. In this guideline, the consent form is the only item on ethical issues, although new writing descriptors have also been identified for this item [see: Appendix 1]. Elements such as slide set, interactive questions, and graphical abstracts are among the educational items to attract audiences, the need for which has been emphasized by some journals. In almost all of the journals, writing requirements on how to write references and author information sections are provided with 100% and 92.6%, respectively.

Another finding of this study is the identification of new types and formats of case reports. 27 case report formats were identified in 10 categories in journals. The difference between these types and the classic case reports is due to following the designs and structure of research articles, paying attention to hypothesis generation, reporting the expert opinion, increasing the number of cases (N cases), emphasis on literature review, attention for educational objectives, letter to editor format and use of multimedia capabilities in reporting and publication of case reports. A clear example of research change is single-patient or N-of-1 trials in which the patient is treated



**Figure 4:** Typology of case reports published in dedicated journals

prospectively and empirically instead of observationally. These articles have a completely different structure and purpose than the classic type. However, brief report articles follow only the IMRaD (Introduction, Methods, Results, and Discussion) structure, and largely embrace the concept of traditional case reports.

## DISCUSSION

At a time when the publication of case reports is growing rapidly, attention to reporting quality and compliance with content standards is the main factor in institutionalizing these evidences in the body of medical knowledge and EBM approach. The starting point for this transformation is the improvement of the authors' instructions for journals because the authors' instructions reflect the journal's policy in following reporting standards and requirements. In this regard, the International Committee of Medical Journal Editors (ICMJE) encourages all medical journals to monitor and endorse reporting statements and standards.<sup>[15]</sup>

The result of the present study showed that the accompanying publication model to publish the case report is the best way to improve and maintaining the scientometric position of journals. With this approach, the discussion of Low citation rate of case reports will not harm the main journal's impact factor. On the other hand, the companion journal—to the credit of the main journal—can achieve a better publishing position among case report—dedicated journals.

The findings of our study showed that well-known medical publishing companies (such as Elsevier and Karger) lead the publishing movement of specialized journals in the field of science. Also, the presence of associations along with one university (Oxford) among publishers showed that these scientific groups realized the importance of the publication of case report—dedicated journals, and the promotion of the scientific contribution of these evidences in scientific publishing.

In this study, analysis of the authors' guidelines of case report—dedicated journals indicated that about half of the journals endorse the CARE guideline, most of which are published by Hindawi and Karger publications. Thus, it can

be said that the CARE guideline is moderately known among specialized journals, but it is far from ideal. Also, the results showed that CARE-endorsed journals are in very diverse subjects. In a way, apart from the surgery field, which has a specialized SCARE guideline, the CARE guideline has been used to write case reports on various fields and topics. A similar study by Agha *et al.*<sup>[16]</sup> found that out of 193 surgical journals, only two journals recommended CARE in their authors' instructions. The acceptability of the case reporting guideline in dermatological journals has also been reported to be very low.<sup>[17]</sup> Also, despite the existence of CARE guidelines, the reporting quality of case reports about dental trauma published in international journals has not improved.<sup>[9]</sup>

In the authors' guidelines, CARE elements such as title, consent form, discussion, abstract, and introduction were given more attention, and qualitative analysis of these sections showed that in addition to accepting these elements, journals also defined more reporting recommendations for these elements [See: Appendix 1]. On the contrary, they paid the least attention to timeline and patients' perspectives. Moreover, 19 new reporting elements were identified in the authors' instructions. Identifying this number of new elements along with additional explanations or descriptors for CARE elements confirms that it needs to be updated or a new guideline needs to be developed and adapted to the different writing requirements of journals. All elements and descriptions are listed and categorized in Appendix 1.

Studies of CARE adaptations have also shown that in most case reports, consent form, patients' perspective, timeline, follow-up and outcomes, and diagnostic assessment elements are not reported.<sup>[9,10,18]</sup> To justify this, it can be said that when the instructions of the journals do not provide a correct explanation of the reporting elements of case reports, the authors pay less attention to these elements when writing the case report.

This indicates that the authors' guidelines for these journals address different reporting and ethical considerations in accepting case reports, and contradicts the findings of Sorinola *et al.*,<sup>[19]</sup> whose study indicated that the guidelines of the journals focused on the style and word limitations of case reports. One of the strengths of the present study is the identification of these reporting requirements. The authors suggest that these sections [Appendix 1] be used as a framework to further enhance reporting guidelines for case reports.

The main reasons for the low endorsement of case reporting guidelines are the emerging case report formats and the lack of knowledge of editors about the existence of these guidelines.<sup>[5]</sup> In this study, 27 new types of case report were identified. The purpose of changing the format of reports in the educational objectives section is to increase the knowledge of fellowship students and novice clinicians. Journals mainly attract the audience by following the pattern of clinical questions and answers. These articles are available regularly to users (weekly or monthly) through websites, social networks, or

pushing services models. Publishing a case report in the form of a case letter or letter to the editor in medical journals is very common, for various reasons: not counting these articles in calculating the journal impact factor, persuading busy doctors and attracting the audience by inviting famous authors to write a case letter.

This diversity is a major challenge to the standardization of reporting. Regarding the second reason, studies show that the editors and editorial board of journals are mostly unfamiliar with standardization networks such as EQUATOR and reporting statements.<sup>[20]</sup> Therefore, in order to increase the quality of reporting, it is necessary to increase the awareness of editors and reviewers of the latest standards and journalism processes.

In order to strengthen the CARE guidelines and the compatibility of this guideline with different types of case report, it is necessary to analyze the reporting sections of each of these types. For types that are compatible with this guide, the first step is to update CARE to cover the new reporting requirements. For example, case presentation and learning points are summarized as a caption for clinical image. The case challenge and educational types of case report should describe a clinical question relating to the image or scenario, along with a carefully validated answer. It is remarkable that video cases must cover all of the elements found in a written manuscript, but presented in video form (10 minutes). Also, this type may contain images, graphs or statistics supporting the findings of the video. In case and review (or case report and literature review), literatures are described in detail and mostly as a separate section with a comparison table. It should be noted that it is impossible to adapt the CARE guidelines for some formats (such as N-of-1 trials, brief reports, and clinical problem solving).

Generally, the CARE guidelines is not the last step in the standardization of case reports, but also the starting point. Since 2013, various extensions (SCARE, CARC, TBM, HOM-CASE, and so on) have been developed and are available to editors through the EQUATOR network.<sup>[20–23]</sup> Based on the findings of this study (including the acceptance of CARE elements and the various formats and requirements of journals), a systematic view is needed to strengthen the instruction of case report–dedicated journals and update or revise CARE guidelines.

The limitation of this study was that only the authors' guidelines and a few samples of journal articles were studied. It is necessary to examine the perspectives of journal editors and the editorial boards of journals to deepen the mechanisms of journals regarding case reports. In particular, identifying those perspectives that have not yet endorsed the CARE guideline in their journals can be effective in developing such reporting guidelines. Also, due to the free access of case report–dedicated journals, these journals are mainly indexed in databases such as DOAJ and PubMed; but in this study, only journals indexed in Scopus (the largest citation database in the world) were

examined. Further studies in journals indexed in DOAJ and PubMed could provide further approaches to standardizing this evidence. In addition, conducting similar research on specific topics such as traditional/complementary medicine and side effects reporting that have a specific reporting guideline for case reporting can further strengthen these guidelines.

## CONCLUSION

Case reports are formal tools for sharing experience and knowledge in complex and rare clinical cases to improve patient health and advance education and research. Although in the evidence pyramid, they are in a lower position than the systematic review and trial studies, the unique function of this evidence is quite evident. With organizational and incentives supports, and also the culture of promoting case reporting, we will propose a new paradigm in medicine called “narrative medicine”. In this space, clinicians focus more on timely recognition of rare diseases, and information services leading to the extraction and analysis of signs and symptoms, new diagnostic and therapeutic processes, and documentation of new clinical knowledge in complex and rare clinical cases. The focus of evidence in this direction is on clinical case reports, and improving the reporting quality and content of this evidence is very important to facilitate this process and use it for knowledge synthesis. Therefore, journals publishing case reports should follow a more integrated process. Accordingly, it is necessary to provide and endorse an up-to-date version of reporting guidelines for publishers and editors. In the end, more attention should be paid to reporting requirements such as ethical considerations, international standards, objectification of indicators, and principles of personalized medicine. Future studies are required to explore factors affecting reporting guideline endorsement from the editors' perspective and to update CARE guidelines based on the typology and new requirements.

Consent for publication is not applicable for this work.

### Financial support and sponsorship

This article was extracted from Ph.D.'s dissertation by Abolfazl Taheri, research plan397623, approved by Vice Chancellery for Research and Technology of Isfahan University of Medical Sciences. Ethical code is IR.MUI.RES.1397.447.

### Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Kidd M, Hibbard C. Introducing journal of medical case reports. *J Med Case Rep* 2007;1:1.
2. Akers KG. New journals for publishing medical case reports. *J Med Libr Assoc* 2016;104:146-9.
3. Jenicek M. Clinical case reports, case series, and clinical vignettes: Where are we today. *Japanese J Gastroenterol Hepatol* 2020;5:1-5.
4. Bradley PJ. Guidelines to authors publishing a case report: The need for quality improvement. *AME Case Rep* 2018;2:10.
5. Danish S, Reza Z, Sohail A. Case reports and their importance in medical literature. *J Pak Med Assoc* 2017;67:451-3.

6. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D, *et al.* The CARE guidelines: Consensus-based clinical case reporting guideline development. *Glob Adv Health Med* 2013;2:38-43.
7. Ravi R, Mulkalwar A, Thatte UM, Gogtay NJ. Medical case reports published in PubMed-indexed Indian journals in 2015: Adherence to 2013 CARE guidelines. *Indian J Med Ethics* 2018;3:192-5.
8. Miguel D, Gonzalez N, Illing T, Elsner P. Reporting quality of case reports in international dermatology journals. *Br J Dermatol* 2018;178:e3-4.
9. Seguel-Moraga P, Onetto JE, E Uribe S. Reporting quality of case reports about dental trauma published in international journals 2008-2018 assessed by CARE guidelines. *Dent Traumatol* 2021;37:345-53.
10. Dragnev NC, Wong SL. Do we CARE about the quality of case reports? A systematic assessment. *J Surg Res* 2018;231:428-33.
11. Kansteiner K, König S. The role(s) of qualitative content analysis in mixed methods research designs. *Forum Qual Soc Res* 2020;21.
12. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005;15:1277-88.
13. Kuckartz U. Qualitative text analysis: A systematic approach. In *Compendium for Early Career Researchers in Mathematics Education*. Cham: Springer; 2019. p. 181-97.
14. Hua F, Walsh T, Glenny AM, Worthington H. Surveys on reporting guideline usage in dental journals. *J Dent Res* 2016;95:1207-13.
15. International Committee of Medical Journal Editors. Preparing a manuscript for submission to a medical journal. Retrieved May 2021. Available from: <http://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html#two>.
16. Agha RA, Barai I, Rajmohan S, Lee S, Anwar MO, Fowler AJ, *et al.* Support for reporting guidelines in surgical journals needs improvement: A systematic review. *Int J Surg* 2017;45:14-7.
17. Miguel D, Elsner P. Author guidelines in dermatological journals discourage the use of the CARE guidelines. *Br J Dermatol* 2015;173:1107-8.
18. Scaffidi MA, Gimpaya N, Li J, Bansal R, Verma Y, Elsolh K, *et al.* Completeness of reporting for COVID-19 case reports, January to April 2020: A meta-epidemiologic study. *CMAJ Open* 2021;9:295-301.
19. Sorinola O, Olufowobi O, Coomarasamy A, Khan KS. Instructions to authors for case reporting are limited: A review of a core journal list. *BMC Med Educ* 2004;4:4.
20. Sarkis-Onofre R, Cenci MS, Moher D, Pereira-Cenci T. Research reporting guidelines in dentistry: A survey of editors. *Braz Dental J* 2017;28:3-8.
21. Van Haselen RA. Homeopathic clinical case reports: Development of a supplement (HOM-CASE) to the CARE clinical case reporting guideline. *Complement Ther Med* 2016;25:78-85.
22. Munk N, Boulanger K. Adaptation of the CARE guidelines for therapeutic massage and bodywork publications: Efforts to improve the impact of case reports. *Int J Ther Massage Bodywork* 2014;7:32-40.
23. Fu S, Cheng CW, Zhang L, Zhong LLD, Kun W, Lin J, *et al.* Consensus-based recommendations for case reports in Chinese medicine (CARC). *Chin J Integr Med* 2016;22:73-9.



## APPENDIX 1: REPORTING ITEMS AND DESCRIPTORS FOR CLINICAL CASE REPORTS IN DEDICATED JOURNALS

### 1. Title

Maximum 150 characters, matching the concepts in the title with the keywords; do not use abbreviations, brand names, and mysterious phrases; use of terms indicating the type of study such as “case report” or “case series”; running title

### 2. Author

Author information such as first and last names, rank or degree, ORCID iD; organizational affiliation information, and institutes involved in clinical case management.

The lead author of the case report must be a fellowship student and one of the authors must be the guarantor of the case report. Determine the authors' contribution in accordance with ICMJE recommendations.

### 3. Abstract

Be structured in three sections: background, case presentation, and conclusion; between 150 and 250 words.

### 4. Keyword

Around three to six keywords, preferably based on Mesh structure that represents the main content of the case report (**such** as type of disease, area/part of the body, interventions)

### 5. Highlights, value statement, learning points as a separate section

In some journals, it is emphasized that three to six learning points of the case report should be mentioned as a bullet point in the form of highlights for the submitted article.

### 6. Introduction

Although none of the journals in the authors' guideline has a complete structure for how to write an introduction to the case report and each journal has specific points, by combining the information of the journal, the following sections for writing an introduction (finally in 4–5 paragraphs) is considered:

- **Background:** A summary of characteristics of the disease or disorder, unusual features and prevalence, and previous treatments and interventions related to the disease should be provided. Avoid stating duplicate textbook information in the introduction.
- **Importance, reason, and rationale:** In this section, explain why the case report is important, specific, or interesting for clinicians. The authors' guidelines of the journal (Endocrinology, Diabetes & Metabolism Case Reports) explicitly categorize the reasons for publishing the report. These reasons can be used by the authors in the introduction:
  - Findings that shed new light on the possible pathogenesis of a disease or mechanism of therapy
  - Unique or rare presentations of a disease
  - Novel diagnostic procedures or treatments
  - New or unexpected associations between symptoms and diseases
  - Presentations, diagnoses, and/or management of rare or new diseases
  - Challenging diagnosis
  - Unusual or unexpected effects of medical treatment
- **Literature review:** In the review section, a summary of the existing literature should be mentioned and there is no need to state the details of the review.
- **Objectives:** In one sentence, state what type of case is reported.
- **Guidelines/approval statement:** In the journal (A & A PRACTICE), mention the compliance and approval of the research ethics committee or board and also the consent form. Authors are also required to indicate that they follow the EQUATOR reporting guideline.

### 7. Case presentation

If more than one case is presented in the case report, the case description section should be reported separately for each case and separated by the headings case report 1, case report 2, and so on. The description should be narrative and in chronological order. The main subsections of case presentation in journals are as follows:

- **Patient information:** Demographic information, age, ethnicity, in such a way that the identity of the patient is de-identifiable and the patient's confidentiality is maintained.
- **Symptoms and complaints:** Mode of presentation of the symptoms (location, severity, etc.)
- **History and health hazard factors**
- **Physical examination**
- **Assessments:** tests data (laboratory tests, imaging, surgery, pathology, etc.), assessed variables, their results
- **Diagnosis or main medical problem**
- **Differential Diagnosis:** How the diagnosis is confirmed; The causes of the disease; What are the diagnostic alternatives; All working diagnoses must be proven.

- **Management (drugs and interventions):** provide a detailed explanation of decisions and treatment procedures
- **Outcome and follow-up:** Follow-up courses, how to assess outputs, complications; the patient's final condition (for example, whether the patient is dead)

In general, the clinical procedure should be clear to the reader, and authors should begin reporting the case from day 0 (e.g., day of hospital admission, day of the first symptom). Express other times and dates according to this fixed point. Other times should be reported, as in the following examples: blood cultures were taken at day + 5, intervention X was performed at day + 10, history of the patient included bacteremia with *Staphylococcus epidermidis* at day -15

## 8. Discussion

Sentences from the introduction and case presentation should not be repeated. Avoid stating statements and conclusions that cannot be justified and supported by the clinical findings of the case. Important components in the discussion section are:

- **Case in context:** State a summary of similar cases; describe the clinical significance and mechanism of the disease or clinical phenomenon. Do the data confirm or reject previous studies? How different was the clinical case from previous cases? Use the latest and important studies.
- **Important and relevant clinical guidelines:** Describe the diagnostic pathways associated with diagrams. Explain the relevance of clinical case findings to current guidelines and clinical practices currently in use.
- **Explain specific treatment decisions:** Additional relevant information that is not observed in the clinical case should also be explained.
- Limitations
- **Broad implication:** The results obtained from the clinical case can be interesting and practical for specialists in other fields. Provide suggestions for future research.
- **Learning points:** Recommendations for patient management and research suggestions or hypotheses should be stated. The highlights are in 2–3 key points and some journals, they are sent as a separate file. The content of the highlights can be mainly defined in the following categories:
  1. Novelty (such as to modify the future practice of medicine)
    - a. In knowledge – new facts or new insights into old facts
    - b. In technology – new or new use for old
    - c. In treatment – new
  2. Instructive errors
    - a. Wrong footing errors – errors of initial impression
    - b. Rare presentation of a common condition
    - c. Errors of diagnostic strategy
    - d. Incorrect information
    - e. Missing information
    - f. Over investigation
    - g. Under investigation
    - h. Misleading investigation
    - i. Inappropriate investigation
  3. Failure to detect serious illness or deterioration and in particular because of:
    - a. System errors (Ergonomics, Healthcare complexity, and Communication)
    - b. Human Errors (Clinical judgment and/or experience, Cognitive pitfalls, Diagnostic errors, and Management errors)

In another model, state the highlights in the two sections: “What Was Known” and “What This Paper Adds”.

- **undocumented claims (e.g., “firstness”, “safe and effective”)**

Do not claim in case reports that your report is the first reported case. If such a claim is deemed necessary, authors should explain their reasoning in the cover letter file and provide search details describing search strategies, search terms, databases, and so on. Similarly, the drugs' effectiveness claims (so-called “safe and effective”) should be stated only for drugs and products which have received FDA approval or have passed phase III trials.

## 9. Patient's perspective:

The patient's perspective includes the patient's views of his/her experience and status regarding the testing proceeding and the effectiveness of treatment, and his/her description of the disease symptoms. The reason for this section is that this information can be used for other patients with similar diseases or clinicians involved in the treatment of similar diseases.

## 10. References

- Emphasis on the use of citation management software (especially Endnote), the use of known citation styles such as Chicago, Vancouver, MLA.
- Avoid citing unpublished references (such as under review articles and personal/email communications); the source type is specified in the citation if applied.

- The citations used in captions/legends should continue the numbering of the citations in the main text.
- For references with more than 6 authors, only the first three authors should be mentioned and then the phrase “*et al.*” should be stated.
- Use the abbreviation for journals indexed in Medline according to the list of this database.
- Citations should be up to 20 references.

## 11. Illustrations (table and figure):

### A- Tables and captions:

- Most journals allow two tables in case reports. Tables should be self-explanatory. Tables should usually be submitted at the end of the manuscript or as a separate file.
- Additional descriptions of the table and the full form of unusual abbreviations should be provided in the footnote of the table.
- If the table has been published previously, permission rules should be followed.
- The Journal of Radiology Case Reports provides two types of tables for case reports:
  - 1- **Summary table:** Contains high-level information about the reported case accompanied by columns (fields) on etiology, incidence, gender ratio, age predilection, risk factors, treatment, prognosis
  - 2- **Differential table:** Each differential diagnosis is presented in separate rows and columns are related to usually imaging modalities; x-Ray, US, CT, MRI - T1, T2, Pattern of contrast enhancement (avid, none, homogeneous, heterogeneous, etc), Scintigraphy, PET

### B- Images and legends

- Images and tables should be self-contained.
- Authors sometimes need to manipulate images for clarity, but manipulation for purposes of deception or fraud will be seen as scientific and ethical misconduct.
- Letters, numbers, and symbols should be clear.
- The figures should be mentioned in the order of the manuscript and loaded in this order. Multi-panel figures (those with parts a, b, c, d, etc.) should be presented in a file that includes all parts of the figure/shape.
- Each image must have a legend or caption, including a short title and description.
- Use arrows and symbols to clarify the findings in the image. Their color should contrast with the background.
- For facial images, the patient should be de-identifiable; otherwise, it must be accompanied by written permission/consent.

## 12. Glossary of Terms (Units, abbreviations, Nomenclature, etc.)

- **Units, terminology, and abbreviation:** Abbreviations should be written in full in their first use unless they are standard units or commonly used in that field. All scales must be mentioned in a suitable unit of measurement based on the International System of Units (SI). Consider a glossary of terms for the article. Do not use abbreviations in the titles of tables, pictures, and sections.
- **Drugs, Devices, and Other Product:** Use the nonproprietary or generic medicine name, tools, and products, unless the brand is influential and controversial in the study. If it is needed to mention the brand name of the products and drugs, provide manufacturing country, factory, and brand name, etc., for the products. Trade names must be in capital letters, and the trademark must be mentioned for that name. Follow the IUPAC-IUB Commission rules for nomenclature.

## 13. Ethical and legal considerations:

- **Acknowledgments:** Information from contributors who do not meet authorship criteria, such as team authors, laboratory services, or equipment used.
- **Authors' Contribution:** Refer to the author section.
- **Conflict of interest:** Identify financial relationships with companies, factories, or other business entities. Benefits can include 1) the usefulness of the work output, 2) dependence on the beneficiary organization, 3) employment for the investor, and 4) specific religious and political orientations, and so on.
- **Compliance with rules:** HIPAA rules, IRB approval, Research Ethics Committee; committee's reference number
- **Research drugs**
- **Plagiarism and scientific misconduct:** If papers are presented at conferences, the conference details should be in duplicate publication. Plagiarism is detected through electronic methods such as CrossRef and iThenticate. Any plagiarism including intellectual theft, intellectual sloth, plagiarism for scientific english compose, technical plagiarism, self-plagiarism, and other scientific misconduct will cause the article to be rejected. In matters of scientific ethics, compliance with COPE guidelines is essential.
- **Patient rights, confidentiality, and consent statement:** All patients have the right to privacy and personal identification information should not be disclosed without consent. This consent is related to educational goals, publishing articles, publishing information on social media, and using images. In some cases, complete anonymity is difficult to achieve, and more informed consent should be sought if there is any doubt. In case the patient cannot provide informed consent,

obtain the consent of the patient's relatives or legal representative and send an English translation of the consent form. To maintain further confidentiality, the statement of the consent form must be included within the manuscript and the signed consent should be kept by the authors. Comply with the provisions of the Helsinki Declaration in human rights matters.

- **Declaration of funding source:** The name and address of the sponsor, the grant number, the supporting role in the design, collection, interpretation of data, and writing should be provided and if necessary, the supporting data should be recorded in Crossref.
- **Permissions:** Authors are required to obtain permission to use any images, tables, and previously published content and to comply with copyright laws. Writing any content based on articles being published, unpublished data, personal communications, and emails requires permission from the author or interviewee.
- **Registration of Research:** The Declaration of Helsinki states that any research involving human interventions and studies should be registered in public access databases. Case reports that are 'First in Man' should be registered in the form of prospectively. For this purpose, you can register in the following registries and its unique number is mandatory when submitting the article: Clinicaltrials.gov; Chinese Clinical Trial Registry [chictr.org.cn](http://chictr.org.cn); Researchregistry.com; ISRCTN
- **Data Availability and materials Statement:** To increase the transparency of the study, additional and supporting data should be sent as a file or uploaded to free access portals (such as Mendel). The data access statement must contain the name of the repository, the email address, and the type of file available.

**14. Supplementary material:** Supplementary material is published electronically and mainly includes the following:

1. Unprintable information: movies, audio files, animations
2. Information that is better presented in electronic form: sequence and spectral data
3. Large data: large tables, images
4. Literature search details

**15. Cover letter: Items are as follows:**

- All authors' confirmation
- Innovation and the importance of the study
- Commitment article not published in other journals or sources
- Obtaining a consent form and following international publication and ethical laws
- Justification for providing more images or resources than the journal needs

**16. Interactive Questions:**

Authors can include in the article a few questions to encourage and increase readers' awareness of the instructive points of the case report. For example, the *Journal of Radiology Case Reports* requires authors to ask five multiple-choice questions for a case report. In the journal *JACC: Case Reports*, the authors of selected articles are asked to define two to three educational questions.

**17. Graphical abstract:** Graphic abstracts are optionally published in Elsevier journals. To attract the audience, send a summary of the report in the form of an image. This visual display can be provided through Elsevier's special service.

**18. Timeline:** It is used to visualize and schedule data in the form of tables or images to show topics or findings that are complex and presented in summary and time course.

**19. Slide Set:** To attract more audience, prepare a set of slides (about 10) containing the details of the case report.