



# Cracking The Case: An Insider's Insight into Case Reports

Case reports have been a cornerstone of medical commenting since the Ancient Egyptians. Although they typically recount single observations, they can provide invaluable insight into potentially novel and/or relevant clinical conditions and treatment modalities, as well as stimulating discussion over various aspects of medical management.

This Insider's Insight provides some background on case reports, guidance on when to use them and best authoring practice.

## Before you start

- Case reports should succinctly describe novel/interesting observations
- Keep your writing concise, avoid over-interpretation, and state why your observation is clinically relevant

## Prepare to succeed

- Confirm that your target journal publishes case reports and prepare your article according to their requirements
- Focus only on clinical information relevant to the case and its interpretation, and provide a clear conclusion

## Key Insights

Case reports provide the opportunity to report on unique observations in a timely manner. Such observations are often novel and previously unreported, which in itself makes them noteworthy. Their publication often stimulates new hypotheses, and can enhance existing understanding, providing benefits and reducing risk for patients. However, the case report remains a controversial means of communication. Critics argue that interpretation made from single observations are questionable.

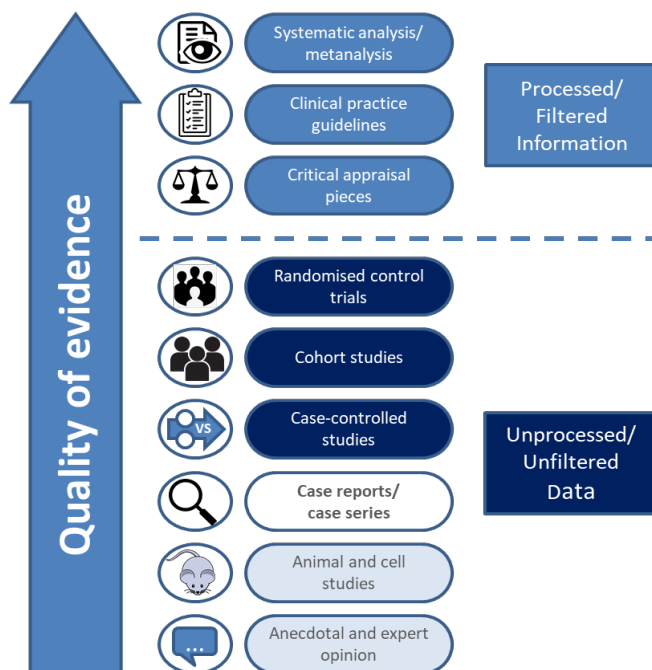
## An Open and Shut Case?

Case reports have long played a valuable role in medical reporting, having even been described as 'the intellectual foundation upon which modern medicine was built' [1]. Despite their historic contribution, the reports began to be seen as a less robust evidence source in the late 1970s, owing largely to the rise in popularity of evidence-based medicine. The validity of basing clinical interpretation around a single patient was considered to have limited scientific value compared to conclusions based on statistically powered hypothesis testing in appropriately designed clinical trials. Consequently, case reports have been relegated to the lower echelons of scientific evidence [2, 3] (Figure 1).

Case reports are cited less frequently than other forms of publication and this has often been given as evidence of their limited value [1, 4], and it was why some journals stopped their publication [4]. Acceptance rates of articles submitted to journals that publish case reports is generally low (~5%), mainly as a consequence of the difficulty authors face in identifying truly unique observations [5]. However, proponents argue that the rare nature of the information contained in case reports is beneficial, and why they are not cited often has little to do with their value.

Case report popularity saw a resurgence at the start of the millennium with the launch of the *Journal of Medical Case Reports* in 2006. By 2015, more than 160 journals from 78 publishers were actively circulating case reports. Most of these (~94%) are published as open access journals [6]. Some cynics have suggested the reason behind the renewed interest in case reports is that they represent an untapped 'opportunity' for publishers.

Figure 1: The Hierarchy of Evidence



Adapted from [9].

As a communication vehicle, case reports give unique and novel insights, especially in the reporting of rare diseases and obscure adverse events. Such data can be invaluable in stimulating discussion around novel propositions that generate new hypotheses [7]. Case reports are also an important educational tool, in that they detail the clinical course of a patient's condition in a format that most clinicians can readily digest, and they are often an engaging and enjoyable read. Equally, the rebirth of case reports coincided with a widespread accessibility to online literature database searching. Almost overnight, previously obscure observations otherwise consigned to the undiscoverable zombie literature could emerge from online search strategies to educate a new audience.

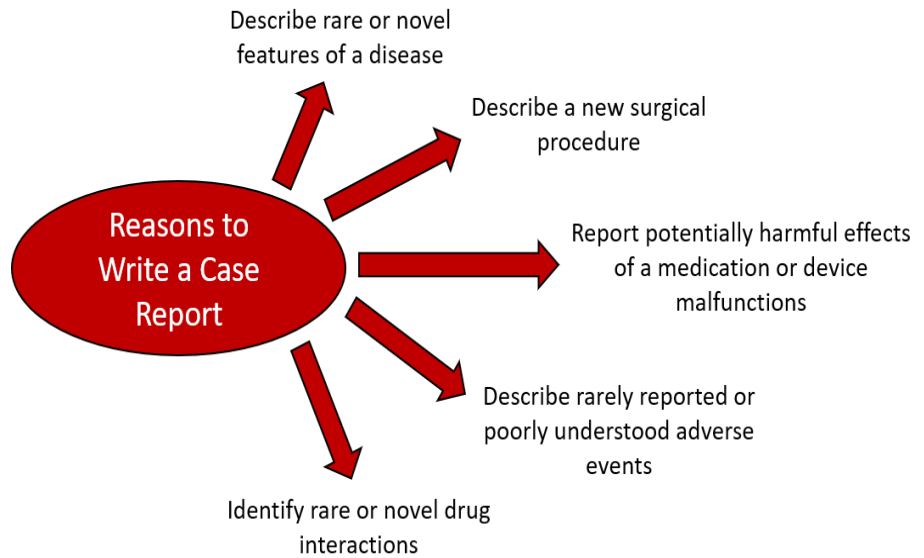
Despite their redemption, the merit of case reports is debatable [3, 8]. They may be summarised best by the epitaph, 'shunned by some and adored by others' [2].

**Table 1: The Case For and Against the Case Report**

Benefits	Limitations
<ul style="list-style-type: none"><li>• Report unique observations</li><li>• Stimulate new hypotheses</li><li>• Provide examples of successful (or other) patient management</li><li>• A quick and easy way of sharing information</li><li>• Easy to read and accessible</li><li>• A means by which junior researchers can establish a publication track record</li><li>• Draws attention to the rare</li></ul>	<ul style="list-style-type: none"><li>• Single (non-statistical) observations that inform little more than very general conclusions</li><li>• No controls or blinding, and susceptible to subjective bias</li><li>• No power to confirm cause and effect</li><li>• Publication bias towards positive findings</li><li>• Infrequently cited</li></ul>

## Is Your Case Sufficiently Curious?

Does your case merit publication? Given your work is likely based on a single observation, it really needs to be novel, interesting and relevant (reasons to write a case report are summarized in Figure 2). Failure to fulfil these criteria is a major reason so many case reports are rejected [5]. Be sure you contextualise your case in your cover letter to the journal's Editor – clearly convey why you believe your observation is unique and valuable. Demonstrate a firm grasp on what has been published previously.



**Figure 2: Reasons to Write a Case Report**

Some historically and scientifically important case report examples are summarised in Table 2. Given the rare nature of case report content, these reports can also be the home of the unusual, bizarre and sometimes downright unbelievable! A selection of some of the oddest case reports were recently summarized [10], with notable examples including a brain tumour containing teeth [11], a girl's excessive consumption of green tea leading to hepatitis symptoms [12], and a man developing 'pathological generosity' following a stroke [13].

## A Topical Reminder – the Worth of Case Reports

The global COVID-19 pandemic and its ensuing uncertainty provides a timely example of the value of case reports. As the news reported increasing incidence, case reports provided a means of rapid dissemination of new discoveries and observations. For instance, reports of otherwise asymptomatic patients suffering with olfactory loss [14,15] or fatigue [16] first highlighted the lesser-known effects of a COVID-19 infection.

The first autopsies performed on lungs from patients with COVID-19 were documented in a case report [17], as was the use of computerized tomography scanning as a diagnostic tool [18]. Case reports also provided information on transmission, both in terms of studies on the first cases in specific countries [19, 20], as well as the initial identification of viral RNA in stool samples, suggesting a possible faecal-oral route of transmission [21]. Likewise, early potential treatments were explored in case reports [22, 23].

Finally, the influence of COVID-19 on other infections and morbidities has attracted some attention. A systematic review of case reports exploring the effect COVID-19 had on skin manifestations revealed that various lesions could seemingly be caused by both the virus itself in the early infection stage and some antibiotic treatments later on [24]. That said, a study of early COVID-19 case reports (January to April 2020), found that the quality was poor, based on completeness of recording [25]. This highlights that, at least for the earliest publications following the outbreak of the pandemic, a degree of caution is needed in their interpretation.

## Making Your Case

On identifying what you believe to be a worthy observation, it is essential to present it correctly. In most instances, case reports can be thought of as clinical narratives, describing a patient's pathway through the diagnostic and treatment process. Although different journals have their own style, case reports are typically comprised of five sections: Abstract, Introduction, Narrative, Discussion and Conclusion. These reports are usually 1500–2500 words in length and reference up to 20–30 scientific citations. It is important to always familiarise yourself with your target journal's requirements before completing your report.

“A review of literature from the 20th, 19th, 18th, and 17th centuries (and before) reveals case reports to be the intellectual foundation upon which modern medicine was built.” – Robert T. Sataloff

**Table 2: Notable Medical Observations First Reported in Case Reports**

Date	Observation	Impact	Ref
1817	Essay on the 'shaking palsy' of a patient	Formal description of Parkinson's Disease	[26]
1939	Successful ligation of a patent ductus arteriosus (leads to oxygenated blood flowing back to the lungs. If untreated can be associated with complications including pulmonary hypertension and heart failure)	First successful attempt of surgical ligation in a patient with patent ductus arteriosus, and it became a treatment option for the condition	[27]
1949	The use of lithium salts in treatment of psychotic excitement (mania)	Lithium became a standard treatment for mania	[28]
1961	Raised the first concerns of the link between thalidomide and congenital abnormalities	Led to contraindication of thalidomide in pregnant women, or men and women trying to conceive a child. It also contributed to development of greater drug regulation and monitoring in some countries [29]	[30]
1981	The incidence of Kaposi's sarcoma in young homosexual men	Gave rise to understanding of AIDS	[31]
1981, 1992	Observed pulmonary hypertension in patients taking fenfluramine (1981) and dexfenfluramine (1992)	Link between anorexic agents fenfluramine and dexfenfluramine with primary pulmonary hypertension	[32], [33]
2012	Isolation of a previously unknown coronavirus from the sputum of a patient	Led to discovery of Middle East Respiratory Syndrome Coronavirus (MERS-CoV)	[34]

### A Picture Paints a Thousand Words...

As your case report is meant to communicate a clear message concisely, it is good practice to use visual tools to illustrate your point – a picture, table, graph, infographic or figure. Generally speaking, data from these supplementary materials do not need to be repeated within the text.

### Off to a Good Start

A great title is vital to catch a reader's attention. Make it brief and clear, being both accurate and interesting to the reader. See 'Putting your best foot forward: An Insider's Insight into what makes a great title' [35].

# Case Report Outline

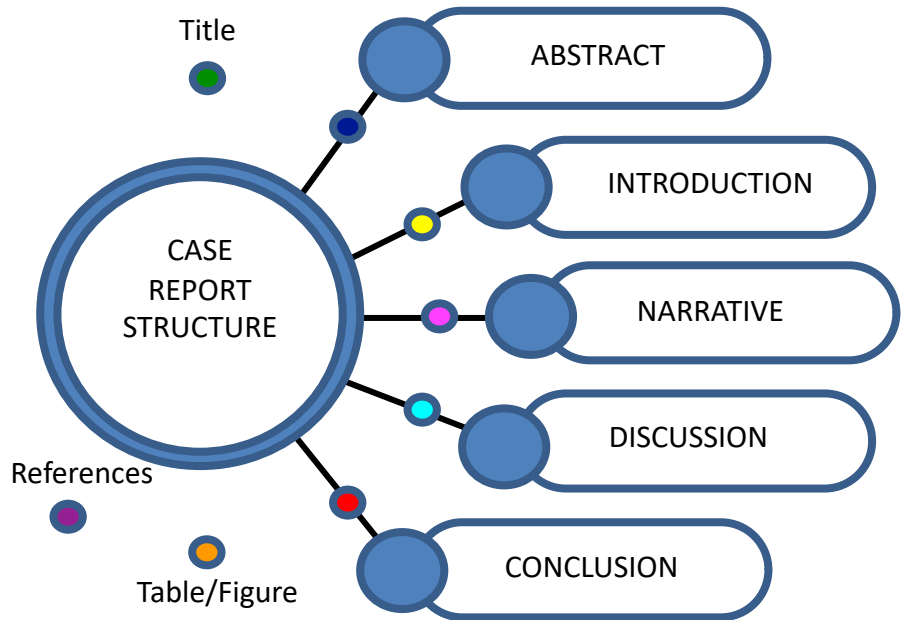
**Abstract:** Provide a brief summary of the case report, usually 100–250 words [36]. The abstract will help your work to be found when others are searching electronic databases, and it will allow readers to quickly gauge the publication’s value to them. See ‘An Insider’s Insight into Amazing Abstracts’ [37].

**Introduction:** Keep this section brief and concise (one to two paragraphs), introducing the subject, rationale and purpose of the report. Use references to provide context and highlight the value of your observations [2, 36]. Save any comparisons with existing literature for the Discussion. Ending the Introduction with a brief description of the patient is an elegant way of kicking off your article.

**Narrative:** Describe the case chronologically, outlining the clinical history, findings following physical examination, investigation results, differential diagnosis, working diagnosis, management, follow-up and final outcome [2]. Provide sufficient information for the reader to draw their own conclusions on the case. Avoid superfluous information, such as routine lab test data.

Relevant information may include:

- Patient demographics and history including age, height, weight, sex and race. Although not appearing immediately relevant, noting the patient’s occupation can also give the reader insight into possible contributing environmental factors
- Laboratory and diagnostic data that support the case and address differential diagnosis should be reported, including both positive and negative findings of relevance. Timelines and results of any diagnostic procedures should also be recorded
- Include the patient’s history, including procedures undertaken, generic and brand names for drugs and dosage regimen (strength, form and route of administration). Provide any renal and hepatic test findings that can help determine the appropriateness of the dosage regimen
- Notes on the patient, such as allergy and dietary information



Authors should aim to establish causal and temporal relationships, indicate the effect of treatments, and describe any unanticipated effects. Additionally, it is essential to include a summary of the patient’s status and final outcome, along with any further treatment proposals [2, 36].

**Discussion:** With limited space, a well written Discussion is what differentiates successful case reports. Work to convince your reader (and the Editor) that you have a valid observation and that it is meaningful!

First, reflect on the case and the rigour behind the observation, its validity and uniqueness, and any limitations. Next, draw comparisons with relevant literature, highlighting any similarities or differences with previous observations. Finally, provide a summary of the key aspects of the case, elaborating on the relevance of the findings, with recommendations for future cases and/or investigations.

**Conclusion:** If required to include this section, provide any conclusions as a concise, single paragraph. This must be justifiable given the available data. Avoid sweeping statements.



## Authors Beware

The rekindling of interest in case reports has seen the launch of over 160 peer-reviewed journals publishing brief narratives. In most cases, articles are provided as Open Access. Although the movement of Open Access publishing has undoubted benefits, concerns have been raised over journals that exist purely to take money from would-be authors. Termed 'predatory journals', they rarely have a robust peer review system. Such journals are considered pseudo-academic, they often have names similar to more prestigious and well-known titles, and only disclose their publication fees following submission of a manuscript [6]. Be cautious when selecting a journal for your article. The 'Think. Check. Submit' campaign has devised a checklist to guide authors in determining if a journal is trustworthy [38].

Points to consider include:

- Do you or your colleagues know the journal?
- Is the publisher easily identified and contactable?
- Is the peer review policy used clear?
- Does the journal index or archive articles?
- Does the journal make any chargeable fees clear?
- Does the company website provide guidelines for authors?
- Is the publisher a member of any recognised industry initiatives?



## An Interview With One of Our Medical Writers



What is the most important information of the case report?



Pay particular attention to describing a clear clinical pathway for the patients and your overall findings.



What of the impact of case report journals compared to conventional ones?



Due to the nature of case reports, they are cited less frequently than other article types. This is reflected in their altmetric scores and the impact factors of journals that focus on publishing case reports. For example, *The American Journal of Case Reports* has an impact factor of 0.736 (2021–2022). This has been used as a reason why some journals, like *BMJ Case Reports*, have chosen not to report their impact factor. They argue that their success lies instead in their educational value.



Are there any specific case report guidelines I can refer to?



The CARE (CAse REports) guidelines were established by an international group of experts with the intention of improving the accuracy, transparency and value of case reports [39]. As well as detailed guidelines, their instructions also include a checklist for authors to work through. Several respected journals and publishers have endorsed the CARE guidelines.

## And finally...

Resurgence in the popularity of case reports contrasts with the trend of 'big data' currently driving innovation in medical science. However, it is generally accepted that 'evidence' gathered from large heterogenous patient populations is not always applicable to individual patients seen by medical practitioners [40]. Indeed, factors such as restrictive inclusion criteria, requiring the absence of particular co-morbidities, distances large clinical trials from data/observations a physician may see in the clinic [6]. In this regard, case reports can be much more engaging. In fact, the narrative nature of reporting better reflects how clinicians interact with their patients, making the information more accessible than academic papers. The advent of searchable online databases means case reports are now much more easily retrieved. In terms of achieving a 'personalised medicine' approach to patient treatment, the case report will likely remain an important source of information.



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## Next Steps

I hope you found this guide useful. We created this Insider's Insight to highlight the role of case reports in the field of medical development, as well as how to best approach writing one for publication.

At Niche, we have extensive experience in writing a variety of documents for publication in academic journals, including case reports. Our team is happy to work alongside you in producing any case reports you may be working on.

If you would like to discuss support for any of your publication issues or challenges, please contact me at the email address below.

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