

# The Case Report: A Valuable Tool

Martha Brown Menard, PhD, LMT

Case reports are a valuable form of descriptive research. The most basic form of practice-based research, a case report is a detailed account of the history, presenting symptoms, assessment, observations, treatment and follow-up of an individual patient, discussed in the context of prior and potential future research.

Many people use the term *case study* synonymously with case report. Technically speaking, "case report" is used more often in health care research and has a very specific format, while "case study" is used more often in the social sciences and can have a much broader focus. The case report lends itself to a combined or mixed methods approach to research design through the incorporation of both quantitative and qualitative data.

Because case reports are based on the description and observations of an individual case, they cannot provide strong evidence of cause and effect. A useful case report emphasizes the clinical applicability of the information presented and places a single instance into a larger context. A case report documents the kind of critical thinking and clinical judgment in which health care practitioners engage every day.

It authenticates the continuous and iterative process of researching and evaluating the patient's condition, determining or revising a treatment plan, and then evaluating the effectiveness of applied interventions according to meeting the patient's stated goals.

## Case Reports and Series

The case report is one of the simplest forms of descriptive studies, and usually features some unusual aspect of health history, assessment or effect of treatment, although it will occasionally be used to present a typical or textbook example of a case and its successful resolution, or to report an innovation in assessment or treatment.

Although the case report does not provide the same weight of evidence as a randomized, controlled trial, it is valuable as a basis for developing new hypotheses. Case reports or studies may also be used to report adverse responses to treatment or to document unusual events, thus alerting other practitioners to these occurrences.

What separates the case study from a clinical anecdote is a compelling rationale for its presentation, a review of the pertinent literature, thorough description, relevant detail, and a discussion of contradictory evidence or observations; along with directions for future investigations or recommendations for working with similar cases.

*Case series* take the case study method a step further by combining individual studies of similar patients; they are often the first indication of a new disease or an adverse effect resulting from a new

procedure.

A good example is the [June 1981 report](#) from the Centers for Disease Control<sup>1</sup> describing an unusual number of cases of Kaposi's sarcoma among young, previously healthy gay men at a time when this form of cancer was typically only seen in the elderly. This case series was one of several reports that heralded the beginning of the AIDS epidemic.

Case studies and case series raise potential research questions, but cannot usually provide evidence of a valid association or causal relationship.

### Reading a Case Report

The general format for a case report is similar to what we see in other journal articles. Author affiliation and any sources of funding are standard, followed by an abstract. Guidelines for medical case reports have been published.<sup>2</sup>

*Introduction:* The case report should contain an introduction with a review of the literature, which provides background information and a context of previous research into which this case study fits. The relevance or significance of the research question may also be addressed here. The review of the literature may provide a rationale for any outcome measures used, along with information on their reliability and validity if these are not well-known. A good review of the literature summarizes the existing research on a topic and sets the stage for the rest of the case report.

*Case History:* Usually, a pertinent description of the clinical presentation of an individual patient follows. It should be brief, clear and adequate, giving relevant health history and background information, such as occupation or other activities related to the patient's presenting complaint or treatment goals. The practitioner may outline their treatment goals here as well.

*Methods:* The methods section describes the case report design (usually before-and-after treatment), the outcome measures selected, how these were measured or documented, any assessments performed, and the results of any medical tests, and may include photos or other illustrations. The reference ranges or normal values for any medical tests mentioned should be included for readers who may be unfamiliar with these. A description of the treatment protocol(s) used, sufficient for general replication, should also be included.

*Results:* The results section contains only the verbal and visual summary of the outcome data. It may take the form of a table showing quantitative pre- and post-treatment measures, a graphical summary of any data analysis including a timeline, and/or a qualitative description of the patient's experience, often in the patient's own words.

Two BioMed Central journals, the *Journal of Medical Case Reports* and its sister publication, *Cases Journal*, now include a "patient's perspective" section, authored by the patient, to add an additional layer of detail to the traditional case report format. This is a good example of the growing trend toward a combined or mixed-methods approach in health care research.

*Discussion:* The discussion section of a case report is similar to the discussion section of other clinical journal articles. The author examines and discusses the evidence presented in the results in terms of the stated study question and objective. The results in relation to other relevant research may also be

considered, as well as other plausible explanations for the results. Limitations of the study can be addressed here.

Depending on the study objective, the author may also discuss implications for other practitioners in terms of the assessment or management of a condition. Almost always, the author makes recommendations for future research, particularly hypotheses to be explored or tested as a consequence of the information presented in the case.

*Acknowledgments* may follow the discussion section, but come before the references.

Acknowledgments are used to thank people who provided substantial help to the author in designing or conducting the case report or in preparing the manuscript. The patient may be thanked generally, but their name should not be mentioned.

*References:* These should always be pertinent and completely accurate, and preferably from peer-reviewed sources. Only the necessary number of relevant papers should be cited.

### Questions to Consider When Evaluating Case Reports and Case Series

- Is the research objective or purpose of the case report clearly stated?
- Is the subject interesting or relevant to your practice?
- Is there a clear statement of the clinical importance of the case(s)?
- Are references provided?
- Is all relevant patient data or history reported in sufficient detail?
- Is any assessment performed or treatment provided described adequately? Could you replicate it?
- Are other plausible explanations for the results considered?
- Are the strengths and weaknesses, implications and relevance to other similar cases or studies discussed?
- Are directions for future studies in this area or the management of similar cases discussed?

The case report / study is intended to be descriptive and observational in nature, and tells a clinically relevant story that has unique value to the practice of health care. In a case report, the individual presentation is examined in the context of current knowledge and is shared for the purpose of educating other practitioners, or stimulating further scientific inquiry and the development of new understanding or knowledge.

Case reports can provide valuable "lessons learned" and enhance clinical practice. Case reports / studies are useful for communicating about a variety of clinical situations including unusual events, adverse responses and treatment innovations. Case reports can suggest new hypotheses to be developed, and are an important original contribution to the research literature.

Think of the case report as a more formal documentation of the processes of [evidence-informed practice](#) and continuous clinical assessment you engage in every day.

### *References*

1. "Pneumocystis Pneumonia - Los Angeles." *Morb Mortal Wkly Rep*, 1981 June 5;30(21):1-3.
2. Gagnier JJ, et al. The CARE guidelines: consensus-based clinical case reporting guideline development. *Glob Adv Health Med*, 2013 Sep;2(5):38-43.

