

## Case Report

# “The Role of Case Reports in Clinical and Scientific Literature”

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Randomized clinical trials have been a corner stone in advancing medical literature. These trials are expensive, labor intensive and require significant resource utilization. Furthermore, these trials are often difficult to execute when dealing with rare diseases due to lack of significant study group sizes. Case reports and case series help to provide fellow colleagues with interesting and unique case presentations, diagnostic methods and treatment modalities. We hereby present a brief summary on the importance of case reports in clinical and scientific literature.

**Keywords:** Case report, scientific literature, Case series, Clinical Cases**Introduction**

Double blind, placebo control and other randomized clinical trials have been hallmarks in advancing scientific literature. However, difficulties in study design and cost in executing these types of clinical trials have been well known to academicians and physicians in the private clinical setting. The use of medical case histories has been an important tool throughout medical history in advancing clinical knowledge. The documentation of specific medical cases is by no means a new practice and has been done since ancient times. Records have indicated that reports were created from the time of Hippocrates (460 B.C. – 370 B.C.) and perhaps even around the time of the ancient Egyptians (c. 1600 B.C.). [1] Before discussing the role and importance of case reports in clinical and scientific literature, it is important to have a working definition of what exactly a case report is. “Case report” as defined by *Taber’s Cyclopedic Medical Dictionary* includes, “A formal summary of a unique patient and his or her illness, including the presenting signs and symptoms, diagnostic studies, treatment course and outcome”[2]. A variety of high indexed journals now reserve select portions of each edition to include case reports. In addition several new clinical journals have been created solely to present case reports. This is not to say that the publication and use of case reports has not gone without skepticism. As many clinical and educational intuitions are gravitating to a more evidenced-based curriculum, journals are sometimes reluctant to publish case reports [3]. Furthermore, published case reports are not often cited in subsequent literature causing an overall drop in a given journal’s impact factor [4]. Regardless, in the following sections we hope to discuss the merits of case reports and their role in enhancing medical education and overall clinical knowledge.

**Medical education**

One could argue that the biggest advantage in the publication of case reports is its pivotal role in medical education. Whether a first year medical student or an experienced attending physician, case reports have an important role in the advancement of clinical knowledge.

Case reports have been given a great deal of recognition for

their versatility as a teaching tool. The case report allows for the telling of two interrelated perspectives, both from patient and physician. By presenting the case report as a coherent story, it allows for a reflection of the patient’s experience of illness as well as the physician’s diagnostic or therapeutic reasoning [5]. The educational value becomes immediately apparent, as discussion of reasoning and planning in reaching a diagnosis is imperative in improving one’s clinical knowledge. Furthermore, a large portion of learning clinical medicine is based off understanding a given disease and its complexity of presentations. Throughout their medical education, students are inundated with clinical vignettes, problem based learning, etc. While these tools are important in creating and testing the foundation of medical sciences, novel treatments or unusual cases presented in case reports allow for a more expansive clinical knowledge base. Often times students and clinicians are trained to assess various diseases based off a pattern of signs or symptoms they are taught. While most of the time these generalizations hold true, the review of case reports in clinical literature allows students and clinicians to be cognizant of new or mixed patterns of presentation [6]. In this same vein, teaching points described in a case report often have a pronounced longevity. Unless there is a major shift in protocol due to recent therapeutics or diagnostic methods, the teaching points from a case report generally have no expiration date. It is for this reason, that many attending physicians and professors use previous cases for teaching purposes [7]. Finally, it is a medium in which medical students, recent graduates and experienced clinicians may record thoughts and observations in reaching a diagnosis or explain the rationale behind an innovative treatment [1].

**New scientific discovery & role in patient care**

As explained above, one of the best features of case reports is the ability to report novel findings and improved therapeutic strategies. With faster publication rates and succinct writing, case studies are an important tool for quickly expanding the growing body of clinical knowledge.

The clearest example of this can be seen when researching rare disorders or diseases. Running controlled trials with standardized testing procedures on rare ailments is very difficult, as often there

are not enough patients to achieve statistical power. As such, a case study provides a venue to record observations and possible therapeutic interventions that can be published [6]. There is a wide spectrum of information that may be presented in case reports such as rare diseases, unexpected complications from standard therapy, novel diagnostic or therapeutic techniques, and results from new technology to name a few. All of these examples simultaneously increase the body of clinical knowledge while also creating a platform for further questioning through controlled clinical trials [3]. Thus, case studies also have an important role in generating new research and hypotheses. The culmination of several case reports allows for comparison and generation of hypotheses for further testing.

Finally, it is important to understand the impact case reports have had on patient care. For example, case reports regarding glomus tumors, penicillin, and toxic shock syndrome have had direct clinical impact and enhanced patient care after publication [3,6].

## Conclusion

When assessing the importance of the case reports it is important to remember several things. First, there is generally a clear “take home point” from each case report that serves an important educational role. For example, the varied presentations of a given disease described in a case report functions in expanding the knowledge of clinicians at all levels. Regardless of the date of publication, conclusions drawn from these studies generally can be reaffirmed or reassessed, showing there is no true expiration date for these articles. Additionally,

case reports provide an important foundation for further research through comparison and reporting novel clinical phenomena. These comparisons have allowed for thought provoking questions that have directly impacted medical protocols. Finally, case reports can provide a direct impact on clinical practice and patient care as has been pervasively noted in the literature. There is no doubt that clinical case reports maintain a unique and important niche in the environment of scientific literature.

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