



Why case reports still matter: reclaiming their epistemic, ethical, and clinical value in contemporary publishing

Marcelo Moraes Valença¹, Mario Fernando Prieto Peres², Juliana Ramos de Andrade¹

¹Federal University of Pernambuco, Recife, Pernambuco, Brazil

²University of São Paulo, São Paulo, São Paulo, Brazil



Marcelo Moraes Valença
mmvalenca@yahoo.com.br

Introduction

In the contemporary landscape of biomedical publishing, case reports have undergone a paradoxical transformation: their absolute number has increased, yet their perceived scientific value has diminished within high-impact journals. This tension reflects a broader misalignment between bibliometric priorities and epistemic function. While journals increasingly prioritize citation-generating study designs, the marginalization of case reports risks undermining a fundamental mechanism through which medical knowledge evolves (1).

Case reports are often relegated to the lowest tier of evidence hierarchies. However, this classification reflects limitations in generalizability—not a lack of scientific importance. Their true value lies in their capacity to identify anomalies, generate hypotheses, and detect early clinical signals, functions that are not only complementary to but also foundational for higher-level evidence generation.

Case reports as the first signal in the knowledge pipeline

Historically, many pivotal discoveries in medicine have originated from individual clinical observations. Case reports remain uniquely positioned to capture rare diseases, atypical presentations, and unexpected treatment responses, particularly in contexts where large-scale studies are infeasible (2).

Recent data underscore their continued relevance. More than 77,000 case reports were indexed in PubMed in 2022 alone, and over 2.4 million case reports exist in MEDLINE databases, highlighting their persistent contribution to the biomedical literature (2).

Importantly, the COVID-19 pandemic reaffirmed the indispensable role of case reports. Early descriptions of novel complications, neurological manifestations, and therapeutic responses emerged primarily through case-based publications, demonstrating their function as rapid-response scientific instruments in emergent scenarios.

In this sense, case reports should not be viewed as isolated anecdotes but as sentinel observations—the first detectable signals in a continuum that may lead to case series, registries, epidemiological studies, and randomized controlled trials.

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Relevance in precision medicine and clinical heterogeneity

The increasing emphasis on precision medicine further reinforces the relevance of case reports. Contemporary clinical practice recognizes that patients with the same diagnosis may exhibit markedly different pathophysiological mechanisms, treatment responses, and outcomes (3).

Case reports provide a framework to document such variability, offering insights into individualized disease trajectories and therapeutic responses that are often obscured in population-based studies. In fields characterized by high heterogeneity—such as neurology, oncology, and critical care—case reports contribute to the identification of subphenotypes and the refinement of personalized therapeutic strategies.

Thus, rather than representing a pre-evidence paradigm, case reports are increasingly aligned with post-population, individualized medicine.

Educational and cognitive value in clinical reasoning

Beyond their research implications, case reports remain indispensable pedagogical tools. They provide context-rich clinical narratives that integrate diagnostic reasoning, uncertainty, and decision-making processes. Unlike controlled studies, which isolate variables, case reports reflect the complexity and ambiguity of real-world clinical practice (2).

For trainees and practicing clinicians, case reports facilitate the development of clinical reasoning skills, differential diagnosis construction, and adaptive decision-making. They also serve as repositories of collective clinical memory, preserving rare presentations and unusual complications that may otherwise remain unrecognized.

Ethical considerations and global equity

The systematic deprioritization of case reports raises important ethical concerns. Patients with rare or atypical conditions are often underrepresented in large datasets and randomized trials. Case reports may constitute the only mechanism through which their clinical experiences contribute to scientific knowledge.

Moreover, inequities in academic publishing disproportionately affect clinicians in low- and middle-income countries, where resource constraints limit access to large-scale research infrastructure. In such contexts, case reports represent a feasible and impactful form of scientific contribution, particularly in documenting locally relevant diseases and healthcare challenges.

Restricting the publication of case reports therefore risks amplifying existing disparities in knowledge production and representation.

Quality, standardization, and scientific credibility

A central critique of case reports is their susceptibility to bias and overinterpretation. While valid, this concern is increasingly mitigated by the development of structured reporting standards. The CARE (CAse REport) guidelines provide a 13-item framework to ensure completeness, transparency, and reproducibility in case reporting (4)

However, adherence remains inconsistent. A recent analysis of journal author guidelines found that approximately 76% of journals publishing case reports do not explicitly enforce reporting standards, highlighting a critical gap in quality control (5).

Strengthening methodological rigor through mandatory guideline adherence, clear distinction between observation and inference, and robust peer review processes is essential to enhance the scientific legitimacy and utility of case reports.

The impact factor paradox and editorial decision-making

The decline of case reports in high-impact journals is largely driven by concerns regarding citation metrics. Case reports typically generate fewer citations than systematic reviews or randomized trials, thereby exerting downward pressure on journal impact factors (1).

This has led some journals to eliminate or restrict case report submissions altogether, or to redirect them to subsidiary journals. While understandable from a strategic perspective, this approach introduces a perverse incentive structure, whereby editorial decisions are guided by metric optimization rather than scientific value.

The consequence is a narrowing of the evidence ecosystem, privileging confirmatory research while disincentivizing exploratory and hypothesis-generating observations.

Toward a rebalanced publishing ecosystem

Reconciling the scientific value of case reports with contemporary publishing realities requires targeted editorial innovation. Several strategies may be considered.

First, journals can establish dedicated sections or companion journals for high-quality case reports, ensuring visibility while minimizing impact factor dilution. Second, editorial policies may

explicitly exclude case reports from citation-based performance metrics, thereby removing disincentives for publication. Third, enforcing adherence to reporting standards such as CARE can enhance methodological quality and facilitate aggregation.

Additionally, integrating case reports into structured data ecosystems, including registries and open repositories, would enable the aggregation of individual observations into analyzable datasets. This approach transforms case reports from isolated narratives into modular units of evidence, suitable for secondary analysis and hypothesis testing.

Finally, equitable publishing policies, including fee waivers and open-access models are essential to ensure that case reports continue to serve as inclusive instruments of global scientific participation.

Conclusion

Case reports are not relics of a pre-scientific era; they are foundational components of a dynamic and pluralistic evidence ecosystem. They identify novel phenomena, generate hypotheses, support clinical reasoning, and amplify underrepresented patient experiences.

Their discrediting reflects not a lack of scientific value, but a misalignment between what is measurable and what is meaningful in medicine.

Reintegrating case reports into mainstream biomedical publishing requires a deliberate shift in editorial priorities one that recognizes the importance of early signals, individual variability, and narrative clinical insight. By combining methodological rigor, ethical commitment, and innovative dissemination strategies, the scientific community can ensure

that case reports continue to inform, inspire, and advance medical knowledge.

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Marcelo Moraes Valença

<https://orcid.org/0000-0003-0678-3782>

Mario Fernando Prieto Peres

<https://orcid.org/0000-0002-0068-1905>

Juliana Ramos de Andrade

<https://orcid.org/0000-0002-5445-8872>