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Case Reports in Women's Health

journal homepage: www.elsevier.com/locate/crwh

Invited Editorial

Medical case reports: A pillar of medical knowledge beyond large datasets

ARTICLE INFO

Keywords

Case reports
Evidence-based medicine
Big data

Over the last decade, the advent of big data and the unrelenting focus on evidence-based medicine from large datasets have raised questions about the relevance and value of medical case reports within the medical literature [1]. Nevertheless, case reports documenting individual patients' detailed experiences and outcomes have long been a cornerstone of medical knowledge [2]. This editorial highlights the importance of case reports as a valid and indispensable contribution to medical literature and argues that the focus on large datasets should not overshadow them.

Throughout history, medical case reports have played a pivotal role in advancing our understanding of diseases and treatments. Seminal discoveries, such as the identification of the link between puerperal fever and hand hygiene by Ignaz Semmelweis [3] and the discovery of Parkinson's disease by James Parkinson [4], were based on meticulous observations of individual patients. Case reports are crucial in medical education [5], providing real-world examples that help students develop clinical appraisal skills and expand their understanding of disease presentations and management options. Case reports can be an early-warning system for identifying novel conditions, syndromes, and responses to treatment. In particular, case reports have been essential in uncovering rare diseases, which may be underrepresented or missed entirely in large datasets [6].

Preparing and reading case reports helps postgraduate trainees and specialists hone clinical reasoning skills [7]. These are the cognitive processes that medical professionals use for diagnosis, treatment decisions, and patient monitoring. By studying individual patients' experiences, clinicians gain deeper insight into real-world patient care.

Critical contributions of case reports to clinical reasoning include:

1. *Diverse clinical scenarios.* Case reports expose professionals to various clinical presentations, helping them broaden pattern recognition skills for diagnosis and decision-making.
2. *Problem-solving and critical thinking.* Actively engaging with case reports promotes analytical skills development, which is necessary for effective clinical reasoning.

3. *Medical knowledge application.* Examining real-world examples enables medical professionals to tailor their knowledge to individual patient scenarios, a critical aspect of clinical reasoning.
4. *Diagnostic and therapeutic decision-making.* Case reports present dilemmas, requiring professionals to weigh the risks and benefits of interventions, promoting an understanding of the applied use of evidence-based medicine and ethical principles.
5. *Reflection and self-assessment.* Case report review promotes continuous learning and professional growth, which are essential for maintaining clinical competence.

Medical case reports offer notable benefits for doctors in the developing world, as they provide an accessible platform for publication and an opportunity to highlight unique health issues their communities face. They enable clinicians to share their experiences and expertise with the global medical community, providing an impactful contribution to medical science. Moreover, case reports help doctors develop essential research skills, grow professional networks, and enhance their visibility and credibility within the global medical community.

Case reports foster a patient-centred approach to medicine, allowing for a deeper appreciation of individual patient experiences, perspectives, and ethical dilemmas [8]. By sharing these unique stories, case reports can remind us of the importance of empathy and understanding in medical practice.

While large datasets offer valuable insights into disease trends and treatment outcomes, they have limitations in capturing individual patient variability [9]. Potential biases in dataset composition and inadequate representation of rare conditions and atypical presentations can limit the generalisability of findings.

Medical case reports can complement these large datasets by providing detailed accounts of individual patient experiences, which can inform and enhance data analyses [10]. Case reports often generate hypotheses for future large-scale research, highlighting potential areas of investigation and spurring the development of new diagnostic tools and treatment modalities.

Ensuring scientific rigour and quality is crucial to maintain the value

<https://doi.org/10.1016/j.crwh.2023.e00514>

Received 14 May 2023; Accepted 16 May 2023

Available online 19 May 2023

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and credibility of medical case reports. Peer review, ethical considerations, and adherence to reporting guidelines, such as the CARE guidelines [11], are essential to upholding publication standards.

Additionally, it is vital to recognise the limitations of case reports in evidence-based medicine. While case reports can provide valuable insights, they should be integrated with other sources of medical evidence, such as randomised controlled trials and systematic reviews, to inform patient care.

In summary, medical case reports hold unique and enduring value in advancing medical knowledge and should not be overshadowed by the focus on large datasets. By embracing diverse sources of medical knowledge, including the rich narratives of individual patient experiences, we can continue to expand our understanding of disease processes, enhance patient care, and advance scientific research.

Here at *Case Reports in Women's Health* we look forward to your contribution to this vital aspect of clinical practice.

Contributors

Danny Tucker is the sole author of this editorial.

Funding

No funding from an external source supported the publication of this editorial.

Provenance and peer review

This editorial was commissioned and not externally peer reviewed.

Conflict of interest statement

The author has no conflict of interest regarding the publication of this editorial.

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Danny Tucker

James Cook University, Queensland, Australia

E-mail address: dt@dannytucker.net.