An Introduction to Writing Narrative and Systematic Reviews — Tasks, Tips and Traps for Aspiring Authors ☆

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Adapting the poet Rudyard Kipling's six honest serving men (what and why, when and how, where and who?), this article aims to give early career authors an introduction to writing reviews, both narrative and systematic. In particular, it offers guidance to aspiring authors in deciding what topic to review and what kind of review to write, and outlines a step-wise process that can be adopted from start to finish.

Keywords   Reviews • Systematic reviews • Journalology • Scientific writing • Evidence-based medicine

Since 2015, *Heart, Lung and Circulation* has offered an annual Best Review Prize to early career first authors of published reviews in the Journal [1,2]. To assist aspiring candidates and other contributors, the Journal hosted the session "*What Editors are Looking for*" in 2016 [3]. More recently, as a satellite event to the 2017 Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand, the Journal presented a follow-up session titled "*Everything You Wanted to Know About Reviews and Reviewing*". Adapting the poet Rudyard Kipling's six honest serving men (what and why, when and how, where and who?), the session aimed to give early career authors an introduction to writing reviews, both narrative and systematic. In short, this is an overview rather than a comprehensive coverage of the topic. In particular, meta-analysis was beyond the scope of the presentation, and is not addressed here.

"What" Is a Review?

Simply put, reviews do not present new data but do provide an assessment of what has already been published or presented. There are two standard types of reviews: narrative reviews, also known as traditional or non-systematic reviews; and, systematic reviews, which may or may not be followed by a meta-analysis.

A narrative review is the "older" format of the two, presenting a (non-systematic) summation and analysis of available literature on a specific topic of interest. Interestingly, probably because the "approach" is non-systematic, there are no acknowledged formal guidelines for writing narrative reviews. They generally address topics for which the more recently developed systematic review format is unsuitable or where, realistically, the topic is better covered as a narrative review; for example, historical perspectives, reviews of research involving various animal models and reviews of patient data from routine (uncontrolled) clinical practice are all considered kinds of narrative reviews [4].

Systematic reviews employ a more rigorous approach to "reviewing" the literature in a well-defined way. Because they are more likely to have considered bias in a methodical way, they are generally considered to represent a better evidence-based source of information than narrative reviews. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement has provided well-recognised, standardised guidelines for authors in writing up systematic reviews since 2009 [5].
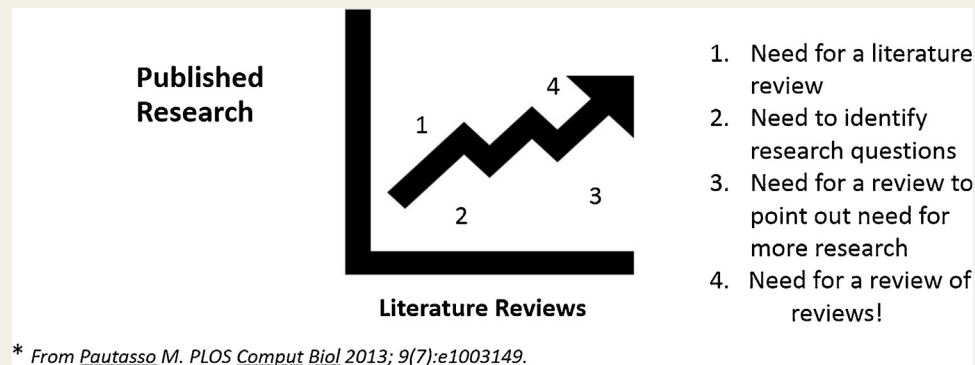
Figure 1 Which review?
The type of review needed may be influenced by the number of already published research papers and reviews. Adapted from Reference [9].

A meta-analysis is generally an extension of a systematic review, and involves taking the findings from several, similar studies on essentially the same subject and analysing the combined data using standardised statistical techniques. This is helpful when smaller sample sizes can be grouped together for a greater chance of a statistically (and hopefully, clinically) significant result.

Over the past few decades, academic biomedical journals have swung away from seeking narrative reviews to preferring systematic reviews, paralleling the general trend toward prioritising evidence-based medicine. However, more recently, the pendulum seems to have swung back, re-adjusting to make space for both types of reviews in recognition of their differing roles in the common scientific endeavour to pursue better understanding of health and disease, and to achieve better health outcomes for all.

The "Why" and "When" of Reviews

Green et al. said that for clinicians, reviews can be an efficient way of retrieving condensed and "filtered" information [6]. For students, a current review is likely to be more up-to-date than a textbook, and for those involved in developing health policy, a review can provide some indication of what measures to adopt (or not). Again, simply put, reviews can help to reduce information overload for all interested parties.

Reviews are also useful for medical researchers, and in several ways. A review can assist in refining a study hypothesis and in identifying pitfalls to avoid in the conduct of trials. Critical reviews can lead to new insights and justify future research directions, and although primary research is the traditional path to recognition for researchers, reviews are often widely read. Gasparyan has reported that reviews attract more journal, textbook, and thesis citations than any other type of article and, accordingly,

substantially contribute to a journal's impact [7]. In this continuing era of the Impact Factor and with the rise of other markers of use and influence, like article downloads and altmetrics (for example, social media mentions) [8], reviews published in highly-ranked peer reviewed journals have been said to be "a driving force" for visibility and sustainable growth of institutions [7].

For all these reasons and more, *Heart Lung and Circulation* welcomes the submission of narrative and systematic reviews, with or without meta-analyses. But, to satisfy typical editorial criteria, they need to be the right kind of reviews submitted at the right time and on the right topic. How can authors know what articles editors are looking for? To provide a general answer to the frequent question "What would you like us to write about?", we suggest Pautasso's graph (Figure 1), published in a computational biology journal, may help point aspiring authors and researchers — those who may know they definitely want to write a review (or conduct research) but are not certain what topic to write about or which review format to adopt — in the right direction [9].

Translating Pautasso's picture into words, we need to know what literature is already "out there" — both original research and literature reviews, before working out what kind of review, if any, would be relevant at this time. Ideally, if we find much published research but no substantive reviews of the same, then it is time for a literature review, or an updated review or more recent research. If there is not much research at all on a topic, there may be a need to identify pertinent original research questions rather than conduct a review. However, if there is much research coupled with lots of reviews, then what may be most relevant is a review of reviews!

However, underpinning, and possibly at times overriding this approach, we would suggest that the key to publication success in a peer-reviewed journal of high quality is that, for any type of review, although the reviewed data may not be new, the assessment or analysis of the original material needs to be *novel* in some way.