Writing scientific papers for publication: “Without publication research is sterile”

M.E.J. Curzon*, P.E. Cleaton-Jones**
Emeritus Professors of: *Leeds Dental Institute, Leeds, England, **University of the Witwatersrand, Johannesburg, South Africa

Abstract

BACKGROUND: The publication of basic science and clinical research findings, as well as new clinical diagnosis and treatment techniques, is widely disseminated. These days there is considerable competition to publish so the selection process is even more competitive. AIM: To present advice as to how to enhance the chances of being published and more importantly how to prepare a paper for submission. METHOD: Instructions are presented as to the steps to be taken in writing a scientific manuscript. This covers Introduction, Materials and Methods, Results and Discussion. Guidance is given as to what should be included and also what should be left out. The precision of writing is paramount and scientific text needs to be simple, easily read and translated by those whose day-to-day language is not English. Advice is given on journal selection and how to ensure the best chance of manuscript acceptance.

Introduction

There has been a significant growth in recent years in the numbers of manuscripts submitted to journals concerned with paediatric dentistry, as well as in all other branches of medicine and basic sciences. There is therefore great competition amongst scientists to have their clinical or basic science research, as well as clinical techniques, diagnoses and case reports, published. Editors of scientific and clinically based journals have to decide which papers to publish when there are constraints on printing space.

There is a need for aspiring authors to make sure their work has the best chance of being accepted. In order to do this it is imperative that a manuscript for possible publication should be prepared to the highest standards. Too often manuscripts are submitted to journals inadequately or sloppily prepared, with layouts that do not conform to journals’ requirements of style, spelling and grammar. In the authors’ experience, as past editors of journals and having served on many editorial boards, is that far too many authors do not pay sufficient attention to detail and submit poorly presented work.

Because of our past experience, this paper has been prepared to give advice on how to approach the task of writing scientific manuscripts to ensure the best chances of acceptance. Because there are many journals, even within dentistry, it is imperative for any aspiring author(s) to do their homework and prepare diligently.

First considerations

In the first instance an author must decide the essence of what they wish to say and to which audience their work is to be directed. The choice of a journal is important. Is it to be a clinically based one or a basic science orientated one? As an author you should appreciate that:

- A targeted journal must be picked with care,
- Each publication is a showpiece of your work,
- You should have a sense of achievement when an article is published,
- You must understand that rejections happen to everyone.

What and when to publish? There are two questions that are frequently asked:

**Question:** “What is a good article?”

**Answer:** “As soon as there is something worthwhile to report.” [Calnan, 1984]

**Question:** “When should one publish?”

**Answer:** “It’s one that has a definite structure, makes its point, then shuts up.” [Lock, 1979]

Which journal? Pick a target journal with care because you will want the best and appropriate exposure of your work and to those colleagues you feel will be most interested. Remember each of your publications will be an indication of your work standard. Within the scientific community your publication(s) may well have implications for grant funding for further research, academic advancement, appointments to positions within your specialty, prestige and standing and of course personal satisfaction. Choosing a suitable journal is important, and the following should be considered:

- Who is the target audience – generalist, specialist; international, national, or local?
- What is the information type – clinical, laboratory, or other?
- What sort of contribution is intended – editorial, review, original work, case report, or letter?
- Is it to be a popular article? What is the journal’s quality, reputation and is there an objective measure of this? Useful measures are the Web of Knowledge annual Journal Citation Reports Impact Factor (IF) and the IF rank in the discipline categories. A third measure is the journal CJM score [Cleaton-Jones and Myers, 2002].

As an example, Archives of Disease of Childhood has an IF = 2.657 (IF is calculated by dividing the number of articles in a journal published over 2 years into the number of citations of those articles). This journal is in the paediatrics category where it is ranked 12/94 in descending order of IF.
The journal’s CJM score is 7/10. A CJM score is calculated using Log IF+1 arranged in 10 Class intervals (Fig. 1) and allows cross comparison of journal quality between discipline categories with various IF levels [Cleaton-Jones and Myers, 2002]. The higher the IF and CJM scores, the more widely cited a journal is and these scores are deemed to be an indication of its quality. However the indication is relative and some excellent journals have chosen not to be evaluated for an IF. The subjective opinion of respected researchers is another indication of quality.

Once a journal is chosen. The most often neglected aspect of preparing a scientific paper is that authors fail to:

Read the instructions to authors and stick to these!
An author should always obtain a copy of the guidelines or instructions to authors, which are readily available online. These instructions should be kept on the desk while writing, should be read carefully at least three times and should be followed to the letter. As well as this, a current copy of the journal should always be obtained and studied carefully. Attention must be paid to the minutiae of details, for example, are authors’ initials or first names to be used? Are degrees and titles used? Is the ranking of an individual within a department recorded? Some journals require these details whereas others do not. In the body of the manuscript check how headings are managed, typeface, font size etc. Are there limits on the number of words in an abstract? Are there restrictions on the number of figures or tables? Are there restrictions on the number of references? Look in detail at how references are managed even down to where full stops (periods) and commas are placed.

Reference styles within the text vary between journals. The main ones are:
- Harvard – last names of reference author(s), with year of publication, given with brackets ‘as reported by Smith and Brown, [1998] or ‘...as previously reported [Smith and Brown, 1998].
- Vancouver – references within a text designated by a number in brackets’... as reported (3)’ or as a superscript number ‘...as reported³’.

The reference list should be at the end of the main text; in alphabetical order for Harvard and numbered in order for Vancouver. Occasionally there are other systems used so each journal’s requirements must be followed exactly. Because these days reference managers (e.g. Endnote) are used sometimes it is essential to make sure that the style in the manager used conforms to a journal’s requirements. Cross checking is imperative.

Risks to not following instructions. It is annoying for an editor to receive a manuscript and on first reading it is obvious that the author(s) have not paid attention to instructions. It is all too easy for an editor, at such an early stage, to say inwardly:

‘They have not paid attention to fundamental details of presentation so it is unlikely that due care to detail was applied to the original research.’

With tens, if not hundreds, of papers being submitted to a journal an editor may discard the submitted manuscript immediately and move on to one where all the instructions have been carefully followed.

Rejection. Most journals publish their rejection rates – the number of submitted papers that are not accepted. Such rates vary and in the most prestigious journals can be very high. But also always bear in mind that rejections happen to everyone throughout a scientific career although probably more often in the early years as you learn the techniques of successful publishing.

Sometimes a rejection is simply because you have selected the wrong journal for your work. It is important to choose carefully where to send your manuscript. Read several issues of a possible target journal to grasp what types of papers and which subjects the journal favours. Websites of journals frequently indicate their preferred scope of papers.

If a paper is rejected do not make the mistake of sending it to another journal without re-writing it. Editors are very quick to see, through abstract layout, reference style, and section headings, that a paper has been submitted elsewhere and obviously rejected. The immediate editorial response is that if another journal has thought fit to reject a paper there are probably good reasons for that. Incorporate recommended changes from the reviewers before re-styling to submit to a second journal.