

Preparing a manuscript for publication: A user-friendly guide

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"Whatever you dream, begin it, for boldness has power, magic and genius in it."

– Goethe

All of us are connected to medical journals, whether it is through reading, writing, reviewing or suggesting topics to be addressed. The purpose of the present commentary is to encourage potential new writers by suggesting ways to smooth the sometimes bumpy path between having an idea for a paper and reaching the finish line of publication.

While there are many reasons for writing a paper – such as to share clinical and research observations; to submit one's observations, ideas and conclusions to critical evaluation by peers; to provide guidance to improve the health care of children and youth; to advocate for policy change; and to support personal academic advancement – writing also provides an excellent learning experience, promotes critical thinking and enhances the ability to be more concise in written communications. These all help to make one a better physician.

STEP 1: FINDING THE TIME TO THINK

To write, one needs something to say, which requires thinking time. There are many times in the day that are ideal for thinking, such as while doing rote tasks that do not require one's full attention (eg, riding the bus or walking to work, shovelling snow, gardening or taking a shower). Develop the habit of using some of these times to think about writing.

What to think about?

In preparing to write, think about the answers to the following questions:

- What do you want to say about this topic – what is your key message?
- Why do you care about this?
- Who is the intended audience, and therefore, what format and type of journal should this piece be submitted to?
- Why would this audience be interested?
- Who might want to work on this paper with you?

Capture these ideas in a notebook, a file folder or your personal digital assistant, or by sending e-mails to yourself. Review and refine the answers. Regularly review this 'ideas file'. Once your ideas are focused, you are ready to write.

STEP 2: FINDING THE TIME TO WRITE

'Five minutes here and five minutes there' does not work for writing. You need 'real' time set aside to write. The solution: schedule time for writing by making an appointment in your weekly planner – a one- or two-hour block once or twice a week.

When and where to write?

Writing is a complex task that requires you to be at your best. Are you a morning person or one who works best at night? Do you need a warm-up period (ie, a preliminary task, perhaps dictating your case notes) to set you up to write or are you a quick study? What type of environment do you find most conducive to a complex task – a quiet room, background music, a cup of tea, etc? To minimize distractions and interruptions while writing, where is the best place for you to write – your workplace office, your home office or the library? A 'do not disturb' sign may help.

Getting started

You have been using your thinking time and your ideas folder. You have writing time scheduled. The next step is to find a 'personal editor' and a 'writing buddy'. The former is a friend or colleague who already is a successful writer and who is willing to work with you on your writing. This person does not need to be physically located near you because much can be done by e-mail. Your 'writing buddy' is someone like yourself who also wants to write, and needs support and encouragement to do this.

Now select your best idea and set yourself a deadline to get your first draft done. Focus on your key message. Write a brief overview to organize your thoughts and arguments. This can form the basis of the later abstract and will help to guide your writing. Remember the AIMRAD format: abstract, introduction, methods, results and discussion. Write your first draft. Ensure that you focus on your key message(s). Select your journal for first submission (see below).

Discuss your first draft with your writing buddy. Make revisions. Show your second draft to your personal editor. Rewrite and refine. Be as succinct and clear as possible. Tables offer a means to present a large volume of data in a concise and readable form. Thoughtful and critical review of the manuscript by all authors, and writing and rewriting several times before submission are critical. Many authors

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TABLE 1
Tips for overcoming obstacles to writing

No time	Go ahead; schedule writing appointments with yourself – call them a conference call with yourself.
No pressure	Book meetings with your writing buddy and your personal editor – set yourself deadlines.
Too hard, too scary	Literature searches and statistics can be intimidating, but medical librarians and statisticians can help.
Need encouragement	Talk about your writing with colleagues. This ensures that you will be asked questions about your progress and receive encouragement to go on.
Need self-discipline	Set yourself deadlines and give yourself rewards when you meet them.
Task too big	Start small (eg, a case report).
Cannot write	Try dictating your ideas and then reshaping them into text.
No topic or idea for a paper	Your writing buddy and your personal editor can help by reviewing your 'ideas file' with you. Remember, it is easiest to write about something that you are passionate about.

find it useful to set the paper aside for a week and then come back to it – flaws may then be more glaring. Remember, no piece of writing will ever be perfect, but work hard to make it of high quality. When you, your writing buddy and your personal editor determine that your paper is ready to go, send it to your coauthors for a final review. Do not procrastinate too long. One can overpolish!

Still not started? See Table 1 for tips for overcoming common stumbling blocks and excuses for not writing.

Caution 1: The last check before submission

Remember to do a last spell, grammar and reference check, as well as ensuring that the paper is in the format requested by the journal selected for submission. Also ensure that all of your coauthors have signed off on the final draft.

Remember that ghost writers, generally pharmaceutically funded, must be disclosed as such, and that this may be a potentially fatal flaw, precluding publication in a peer-reviewed journal.

STEP 3: PREPARING A CASE REPORT

This is an excellent starting point for busy trainees and clinicians. For a detailed list of tips on how, why and which cases to write up, see the accompanying article by Jeremy Friedman in this issue of the journal (pages 343-344).

Caution 2: New realities – Consents and ethics

The *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (1) is the ethics guide for human research in Canada. Patients need to be aware that their cases are being published. Discussion with the parent or child, followed by their review of the manuscript, noting the same in their chart is ideal, if possible. Some journals require documentation that this has been done. Your hospital's research ethics board may have additional recommendations and requirements. As of July 2005, all clinical trials in Canada must be registered with Health Canada (2).

TABLE 2
Selecting a journal

1. Identify your audience.
2. Determine what journals they read.
3. Determine what various journals publish by reviewing recent issues.
4. Identify a journal that serves your purpose.
5. Read the instructions to the authors.
6. Outline and structure the summary abstract and references according to the specific journal requirements.

STEP 4: SELECTING A JOURNAL FOR SUBMISSION

Your manuscript needs to be a 'best fit' with the target audience and mission of the selected journal. Advice on journal selection is provided in Table 2.

Another consideration in journal selection is the 'impact factor' (3). This reflects the number of times an article from that journal is cited in other papers (the citation index). Recent examples of impact factors are as follows: *New England Journal of Medicine* – 38.570, *Journal of the American Medical Association* – 24.831, *Pediatrics* – 3.781, *Journal of the American Academy of Child Psychiatry* – 3.779, *Journal of Pediatrics* – 2.913, *Pediatric Infectious Diseases Journal* – 2.262 and *Pediatric Annals* – 0.318 (4). The impact factor may be important in the promotions process in some faculties, but in terms of the impact on the health of children and youth (ie, practice or policy change), there is much less correlation. Notable examples include publication of the seminal reports of congenital rubella syndrome and methodology for polymerase chain reaction in 'low-impact' journals.

Opportunities for contribution to *Paediatrics & Child Health* are many (5). Your work will reach and be read by a wide audience of Canadian paediatricians, family physicians and others with a strong interest in the health of children and youth because *Paediatrics & Child Health* is one of the most highly read Canadian specialty journals.

Caution 3: Prepublication use of data

If information in the paper has been presented at an earlier scientific meeting, this must be noted in a footnote on the title page.

Some journals offer 'fast-tracking', with the electronic version of the paper appearing in real-time (ie, when accepted) and the print version moved forward on the wait list of 'to be printed' papers. Timing of publication can be important because the material in the article cannot be discussed with the media while it is 'in press' (ie, not yet submitted, under review or accepted but not published) in a peer-reviewed journal.

Caution 4: Authorship

Qualifications for authorship have been the subject of much discussion, and criteria have been developed (6). Remember that contributors who are now geographically remote or have moved away should be included. A spirit of generosity may ultimately be more helpful to improving the health care of children and youth than a highly restricted approach to authorship.

STEP 5: SUBMITTING YOUR PAPER

The journal's editor first notes whether the topic of the paper is a fit for the journal. If not, a rejection letter is sent. If it is a fit, the editor selects peer reviewers with recognized subject area expertise. An instructional guide for peer review of biomedical manuscripts can be found at <<http://www3.us.elsevier-health.com/extractor/graphics/em-acep/index.html>> (7).

The review is divided into two specific sections, one 'for the editor only' and another for the author(s) (also seen by the editor). Reviewers identify problems with the methods, the results (including whether the numbers add up), the interpretation and the conclusions (are they justified? are the limitations fairly stated?). Tables and figures are examined for clarity and accuracy, and references are checked, including verifying that the most current ones are included. The abstract is reviewed to determine whether the major results and conclusions are well stated. The decision on acceptance is made by the editor, based on the advice received from the reviewers and other factors, such as how well the paper fits with the journal's mission, the timeliness of the topic, whether the paper is of a substantial nature rather than the 'least publishable unit' and the availability of journal space.

The generosity of reviewers for *Paediatrics & Child Health* merits special comment. Many are willing to review a manuscript several times and suggest in great detail how a manuscript can be improved so that it may then merit publication. This can be especially helpful for new writers, and is rarely or never done by most journals.

The most common problems noted by editors with all types of submitted papers are summarized in Table 3. The reasons for rejecting research papers are similar (8). In particular, lengthy rambling papers hold less appeal for both editors and readers. Also, beware of hyperbole. While passionate advocacy pieces about child and youth health issues are critical for mobilization of societal action, hyperbole without evidence will not be accepted.

There are some absolutes in manuscript submission – eg, duplicate submissions are not acceptable, and another journal can only be approached after the review (and rejection) from the previous journal has been received. To avoid charges of plagiarism, every reference must be cited. When a review paper has led you to new references, cite both the original and the review paper. The manuscript must also have been read and approved in its final form by all authors, by all sources of cited personal communication, as well as by those acknowledged. This also holds true for resubmissions.

STEP 6: DEALING WITH REVIEWS

Whether your paper is accepted or rejected, carefully look at all reviewers' comments. Do not take these personally because revisions are required for virtually every manuscript in every peer-reviewed journal. Use these comments as guides to improve your manuscript. If the paper is conditionally accepted or invited for resubmission pending revisions, ensure that all of the reviewers' concerns have been addressed before sending the revised paper back to the editor.

TABLE 3
Common problems with manuscripts

• Too wordy; too long; text difficult to follow
• Not of interest to readership of journal
• Copy editor issues – grammar, spelling, format
• Content incomplete, insufficient or out-of-date
• Study limitations not well stated; conclusions do not fit data
• Emotionalism; 'getting carried away'; no evidence to support statements
• Conflict of interest
• Ghost writers
• Authorship not fully stated
• Prepublication use of data

An accompanying letter outlining these changes, as well as explaining why any reviewers' comments have not been addressed, is helpful to the editor.

STEP 7: DEALING WITH A REJECTED MANUSCRIPT

First, recognize that acceptance rates across journals are low, often less than 20% (9). Do not be discouraged. Take heart, all writers have had many rejected papers. Second, unemotionally consider the reviewers' and editor's comments. Third, take time to think about how the paper may be revised and improved. A discussion with your personal editor may be helpful as you try to address each comment. Consider submission to another journal in which the topic may be of greater interest. Sometimes, condensing your paper into a brief 'Letter to the Editor' may be a more appropriate way of conveying the information.

You may also wish to develop new collaborations with more experienced writers or take some specialized training to improve the quality of your work. Journal clubs and critical appraisal groups all provide excellent sources of learning experiences for improving your knowledge about good writing. If further methodology and research training is desirable, all academic centres can provide direction to helpful courses and programs. For those with more limited timelines or finances, provincial and territorial medical associations and the Royal College of Physicians and Surgeons of Canada have some resources for furthering training.

CONCLUSION

The strength of paediatrics in Canada is expressed in many ways, including in our publications. For those who do make contributions through writing, efficiency may be improved by careful selection of the first-choice journal in advance of manuscript preparation, boldly and swiftly initiating the writing process, being as clear and succinct as possible, anticipating the peer-review findings, and then writing and rewriting the manuscript with collaborators.

Paediatrics & Child Health welcomes the opportunity to provide leadership in advocacy, education and translation of research findings for clinical practitioners. We also welcome and encourage first-time writers through our supportive manuscript review process.

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NOTE: Access to the Thomson ISI *Journal Citation Reports* is subscription controlled. The print version of the data is published annually as the Science Citation Index *Journal Citation Reports*. The database version – ISI Web of Science, *Journal Citation Reports* – is available

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LETTER TO THE EDITOR

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Reviewing pesticides and cancer, Alavanja calls for consideration of epidemiology, toxicology and molecular bioassays, with hypothesis testing. This is the comprehensive basis upon which we concluded that 2,4-D was linked persuasively to cancers, neurological impairment and reproductive difficulties.

Recent research has strengthened the association between 2,4-D and cancer.

In a cohort of 139,000 farm workers, incidence of non-Hodgkin lymphoma (NHL) was increased on farms where 2,4-D was used (OR = 3.80, 95% CI=1.85-7.81) (3).

Non-Hodgkin lymphoma (NHL) with t (14;18) (q32;q21) chromosomal translocation is correlated with herbicide exposure, while the subset without this genetic trait is not (4). The age-standardized incidence rates of NHL in Canada and the United States are among the highest in the world, and the number of cases and age adjusted incidence rates for NHL rose steadily in Canada from 1992-2002 (5). Although most cases of NHL are large cell diffuse, the increases have been greater for the nodular follicular form – the subtype associated with exposure to pesticides.

Beyond cancer, we note that reproductive and neurological impairment are also linked to 2,4-D. The PMRA's reassessment proceeded without developmental neurotoxicity data, despite evidence of demyelination in animals, human epidemiological evidence of neurological harms, and recognition of the issue in the form of notice requirements for professional applicators.

Canada is not alone in shortchanging developmental neurotoxicity. A letter to the Administrator of the United States Environmental Protection Agency (EPA) from the National Treasury Employees' Union representing EPA scientists, protests that the EPA is violating the public trust and is putting children and the unborn at risk by not acting appropriately regarding developmental neurotoxicity of pesticides (6).

Therefore, we maintain our previous conclusions and recommendations. Recent research and events strengthen our contention that 2,4-D (and doubtless other pesticides that are also subject to inadequate scrutiny) are harming Canadians and our

environment. Particularly since the PMRA's reassessment focused on use of 2,4-D on turf grass, this nonessential use cannot be justified. We urge Canada to maintain sovereignty over the use of toxic chemicals.

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