

How to Get a Paper Past the Reviewers

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INTRODUCTION

Getting a paper published is immensely rewarding on many levels. Most importantly, it provides clinicians with the opportunity to contribute to the advancement of their specialty. However, writing up a paper for publication is time consuming and challenging. It requires discipline, thinking outside the scope of normal daily activities, perseverance and determination. It often involves anxiety and frustration. It has a considerable opportunity cost, because the time involved could be spent with family and friends, or pursuing other academic or non-academic interests. Moreover, the entire process may end in disappointment, irritation, and even self-doubt if the paper is eventually rejected. Therefore, there is no point embarking on this process unless there is more than a reasonable chance that the paper will be published. For this reason, the 'proposed paper' should meet certain criteria even before the decision to embark on the project, or to commence 'writing up', is made.

Fortunately, there are extensive guidelines on 'how to write a paper', both from journals themselves, and from a wide range of texts (see Further Reading below). The aim of this paper is to highlight some of the main points, and to provide some additional hints on 'how to get a paper past the reviewers'. The paper is written from the perspective of a reviewer and editor. It is aimed primarily at first time authors and those seeking some basic guidelines. Nevertheless, it is hoped that more accomplished authors will find some of the comments useful, or will at least agree with the majority of points made.

BASIC CRITERIA

The three basic criteria for all scientific papers are Importance, Originality, and Validity. 'What you have to say' must in some way, or to some extent, have all three qualities. This is what makes a submission 'scientific'. If one of these is missing, there is no point continuing. No amount of argument or embellishment will rescue the paper. In other words, 'two out of three ain't bad' but it is 'not enough'.

Importance

For a medical journal, importance (or relevance) implies that the paper has the potential to influence clinical practice or advance the science of medicine. Clinical practice is influenced by improvements in safety, efficacy, efficiency, or quality. The science of medicine is advanced by more fundamental improvements in understanding or knowledge, and the generation of new hypotheses. In either case, novelty alone is rarely justification for publication. For example, just because a study has not been published before, does not mean that it is automatically worth publishing.

Importance may range from being minor or modest, through to being a landmark paper with major implications. The 'importance' of a paper can be best assessed by the answer to the 'so what?' question. If the authors cannot answer this question clearly and succinctly, it is unlikely that readers will be any more successful.

Most published papers could be considered in the 'minor importance' category. Authors should not be discouraged from submitting these types of papers. It is the combined weight of all types of papers that will eventually influence clinical practice.

Originality

Originality (or novelty) implies that the paper offers some new suggestion, approach, interpretation, level of evidence, or warning. In general, the minimal level of novelty required is inversely proportional to the importance of the topic. For example, patient safety, post-operative pain, nausea and vomiting, and potential awareness, are issues of concern to most anaesthetists on a daily basis, so even minor degrees of novelty are welcome. Similarly, potentially important advances (eg. outcome studies) often require several comparable studies, or even repeat studies, before they become widely accepted. In contrast, papers on rare, esoteric, or unimportant topics require much greater novelty before publication is justified.

A few minutes performing an electronic literature search may save many hours of pointless investigation or writing, if it is found that a topic has already received sufficient attention. On the other hand, a literature search may identify gaps in knowledge that could form the basis for further study.

Validity

Validity implies that the methods are appropriate and that the interpretation of results is sound. The methods include all aspects of the study, from ethics approval and informed consent, through to unbiased sampling, randomization and blinding (where required), applicability of controls, adherence to protocols, accurate and relevant measurements, and appropriate statistical analysis. The results must also be interpreted correctly, and all plausible explanations must be considered.

Validity is essential for all forms of scientific publication, not only clinical trials. While 'how to ensure validity in research' is clearly outside the scope of this paper, some basic points are mentioned briefly in later sections. Only with appropriate methods and correct interpretation of results are authors able to make valid conclusions. Without valid conclusions, a paper is meaningless, no matter how highly it rates in other areas.

Given the requirement to have all three basic criteria, it is wise to obtain peer feedback before commencing a project. This may range from informal discussion with colleagues, through to a formal grant application procedure. For Case Reports, Audits, Surveys, and Literature Reviews, there will be a temptation to commence with minimal or no peer review. This should be resisted. Peer feedback not only provides comment on the value of the project, it may also provide helpful suggestions. For clinical trials, feedback is mandatory (eg. through research advisory committees or funding bodies).

FORMAT

The standard format of **Introduction, Methods, Results, and Discussion** is designed to assist authors to present their message most clearly. This format should be used for all papers, including Audits and Surveys, with the obvious exceptions of Case Reports and Narrative Reviews. Case Reports require a case description rather than a methods section, while Narrative Reviews have no formal results section. However, in all other respects, they should follow the same format. Traditionally, and for the ease of readers, the **Summary** (or Abstract) is presented at the start of the paper. The following is a short synopsis of what is expected in these sections of a paper.

Introduction

This should be brief, and should explain in a few paragraphs **WHY** the study, audit, survey, or review was undertaken, or the case presented. Extensive background information or literature review is rarely required, and is even discouraged. The introduction should have a clearly stated aim, which will focus the reader's, and very often the writer's, attention.

Methods

This should describe **HOW** the study was undertaken, including ethics approval, informed consent, inclusion and exclusion criteria, sampling, randomisation, interventions, equipment used, measurements made, data collected, and statistical analysis. There should be sufficient detail to

allow others to repeat the study, although unnecessary detail should be avoided. The methods section is often the easiest to write, being entirely descriptive.

One section of the methods that often receives scant attention is the statistical analysis. This may be because some authors consider the statistics to be a formality and of little importance. Nothing could be further from the truth. In medicine we are constantly dealing with probabilities. In order to correctly interpret our data we have to exclude chance observations. Reviewers and readers need to be assured that this has been done correctly. Therefore, the statistical analyses should be described in detail. It should be clear which test was used for each comparison. Stating 'as appropriate' is not sufficient, because the reader should be entitled to judge whether the tests are appropriate. In general, the simpler the test, and the fewer the number of tests, the better, so long as the hypothesis can be tested appropriately. The use of confidence intervals rather than p values is encouraged, because they provide additional information about the magnitude of difference between groups. Common errors include omission of power calculations or undertaking too many comparisons. For other than the simplest studies, statistical advice should be obtained prior to commencing the study. However, authors should ensure that they understand the statistical tests they use.

Results

This is the most exciting aspect of the paper because it describes **WHAT** was found. The results should be presented clearly and succinctly. Demographic details of patients are usually presented first. Statistical comparisons are rarely required for demographic data, especially if groups are randomised. The main findings should be presented in the text, with additional details being included either in tables or figures. Actual p values should be provided; it is not sufficient to state $p < 0.05$ or NS (not significant). Discussion about results is inappropriate in the Results section.

Discussion

Authors should commence the discussion by **EXPLAINING WHAT** they found. In other words they should interpret the results for the reader. In many ways, this is the moment of glory for the authors, and the opportunity for them to explain what is exciting about their findings. Moreover, this is what readers want to know. Unfortunately, many authors start the discussion with very general statements about the topic, repeat the introduction, or proceed straight to a literature review. This practice is at best disappointing, and at worst, irritating, because the reader must then search through the remainder of the discussion until they find the information they require.

After presenting their explanation of what the results mean, the next few steps should involve justifying the methods and the explanation. The strengths of their study should be outlined and any potential weaknesses defended. Authors should justify their interpretation of their findings and explain why alternative interpretations are less plausible. At this stage, readers should be able to decide whether 'what' the authors have stated is **VALID**.

The authors should then put their findings into context. If the findings support previous studies, this should be stated, with a brief review of the literature involved. Here the **ORIGINAL** features of the study can be highlighted. If the results are different to previous studies, possible reasons for differences should be offered, which might include specific criticisms, or an outline of how the studies differed. Suggestions for further research can be made.

Attention should then turn to the implications of the findings. These may be theoretical, practical, or both. It is here that the authors must convince the readers of the **IMPORTANCE** and relevance of their paper. This is often achieved by answering the **'SO WHAT?'** question. The answer may be a recommendation, an implication, a suggestion, or a warning, but there must be an unambiguous answer. Answering the 'so what?' question is invariably more difficult than it sounds. Nevertheless, the importance of the answer cannot be over emphasized.

Abstract (Summary)

Many readers who browse through journals may read only the abstract of a paper. Moreover, it is only the abstract that is available freely in most electronic searches. Therefore, the abstract should include all the main points. Many journals now require a structured abstract so that these

points are in a standard format. Non-structured abstracts should include, as a minimum, what was done, what was found, and what it means. Ideally there should be a one sentence answer to the 'so what' question. For Case Reports, there should be a statement about what can be learned from the case. Literature Reviews should summarise the main points of their review, not merely list what 'will be reviewed'. It is important that abstracts are no longer than 250 words, because they are electronically truncated at this point.

TYPES OF PAPERS

Case Reports

Case Reports are considered very low in the hierarchy of evidence. Nevertheless, they may offer a useful suggestion or warning. To warrant publication, Case Reports must have a clear unambiguous educational message. Rarity or Novelty alone, or a description of a job well done, are not criteria for publication. The management of the Case must be relevant to the majority of readers. In the case description, only the details pertinent to the educational message need be included. The discussion section should be about the case described and the lessons learned, not on the topic in general. In particular, an extensive literature review should be avoided. If only one aspect of the Case is of interest, a 'Letter to the Editor' may be more appropriate.

Audits

Audit is a very important part of the quality improvement process. However, the main benefit of an audit is to those undertaking the audit, as well as to the departments and institutions involved. For this reason intra-departmental audits are rarely suitable for publication. In order to be suitable for publication, the authors of an audit must convince reviewers and editors that the implications of their audit extend outside their institution.

Surveys

Surveys may provide useful information on attitudes and practices, which may form the basis for future recommendations and changes. However, they are very difficult to design and to interpret, especially if there is a low response rate. The information obtained is often subjective and is always descriptive. Therefore, the temptation to over analyse the data should be resisted. Like audits, in order to be accepted for publication, the findings must have implications for the wider anaesthetic community. Surveys of 'knowledge' present a problem, because it is not known with what rigour the respondents answered the questions.

Clinical Trials and Cohort Studies

Clinical Trials are a scientific experiment. The effect of an intervention is evaluated by comparing its effect (in a test group) to a reference standard (in a control group). Confounding influences are minimised by ensuring that the groups are similar (in both demographics and management), and that all other variables are held constant. Bias is minimised by appropriate sampling, randomisation, and blinding. The effects of inherent variability and chance are addressed as much as possible by appropriate statistical analysis. Clinical Trials come under the most intense scrutiny, because they carry the most weight. When well designed and conducted, they bring us closest to the 'truth'.

Cohort studies involve comparing outcomes of two groups, either prospectively or retrospectively. The aim may be to assess the influence of a risk factor or an intervention. In either case there is no randomisation or blinding, and without strict protocols, it is difficult to hold all variables constant. It is often argued that Cohort Studies represent the 'real world', while Clinical Trials are contrived. This may be true, but this does not make cohort studies more scientific. Cohort studies have their strengths, but their limitations must also be accepted.

Literature Reviews

Literature reviews are very popular with readers because their aim is to provide an up to date summary of all the relevant literature on a particular topic. However, how does the reader know that 'all' the relevant literature has been reviewed? Similarly, how does the reader know that the individual studies have been interpreted correctly? In order to answer these questions, it is necessary for reviews to have an aim, a methods section, a results section, and a discussion.

This will enable the reader to gauge to what extent the review is 'systematic' (ie. to what extent 'all' the relevant studies have been included, and whether the interpretations have been appropriate). Systematic reviews may include a meta-analysis, which involves the pooling of results from similar studies of appropriate quality. Systematic reviews, with or without meta-analyses, are at the top of the hierarchy of evidence. They require considerable resources and expertise.

Non-systematic or 'narrative' reviews are useful for diagnostic or therapeutic techniques, new technology, basic science summaries, and management of rarer disorders. Ideally they should still have an aim and a methods section, although the results may be in 'narrative' form. Narrative reviews of clinical questions may occasionally be useful if there is little or no outcome data available. However, they are rarely appropriate for clinical questions for which extensive outcome data is available. Whether or not a review is systematic or narrative, it still requires critical analysis to be suitable for publication.

Expert Opinion

Certain types of articles such as editorials, point of view articles, and review course lecture summaries, are always classified as opinion. Whether or not they are 'expert' opinion is subjective. These articles have value in the same way that book chapters have value, but they are not subject to the more stringent requirements of scientific articles, and provide a very low level of evidence. The same applies to articles in non-peer reviewed publications (such as the current article).

PRESENTATION

The presentation of a paper refers not only to the format, but also to the clarity of language, writing style, and attention to detail. Strictly, the decision on whether or not a paper is accepted should be based solely on its scientific merit, because the editorial and production process can theoretically attend to improving the presentation. However, this may not always be the case. For example, if the presentation is very poor, the scientific merit may not be appreciated. In other situations, if the scientific merit is marginal, the presentation may make the difference between acceptance and rejection. Therefore, time spent in optimising the presentation of a paper is well spent.

While writing styles differ, and clear succinct language often eludes even the most accomplished authors, multiple spelling mistakes, typos and grammatical errors are inexcusable. Reviewers and editors will go to extraordinary lengths to assist authors to improve their presentation if they can see that an effort has been made. However, if it appears that the authors have not taken much trouble, reviewers and editors will ask themselves why they should spend their Saturday afternoons correcting substandard work. At this point it should be stressed that reviewing and editing are mostly voluntary activities.

In practical terms, good writing is not only its own reward, it also increases the chance of an article being accepted by an author's favoured journal, and reduces the number of resubmissions or revisions required.

COMPLIANCE WITH INSTRUCTIONS FOR AUTHORS

It is a 'no-brainer' to comply as closely as possible with a journal's 'instructions for authors'. Note that these are *instructions*, not guidelines, and are not 'optional'. If the authors do not follow 'instructions', reviewers may wonder how carefully other aspects of their study were undertaken. There is also a risk that reviewers will jump to the conclusion, possibly unfairly, that the paper was previously submitted to another journal and rejected. A reference list in another journal's format is often a give-away. If nothing else, compliance with a journal's instructions is a courtesy that will be appreciated by reviewers and editors alike.

CHOOSING A JOURNAL

Choosing an appropriate journal has a major influence on the likelihood of acceptance. For example, subspecialty papers are more likely to be accepted by subspecialty journals, and more general interest papers by general interest journals. Similarly, papers with relevance confined to a certain region or country are more likely to be accepted by a journal within that region or

country. In general, authors should become familiar with the type and standard of articles published by the journals they are considering before deciding where to submit their work. It is understandable that authors will choose a journal with the highest impact factor or circulation. However, the widespread use of electronic searches means that all papers can be accessed, so long as they are published in an indexed journal.

RESPONDING TO REVIEWER'S COMMENTS

It is rare for a manuscript to be accepted without any request for revision. Once the reviewers' comments have been considered, it is important to address them in a polite and systematic way, no matter how unreasonable or pedantic they seem. Appropriate changes should be made in the text, and these should be easy to identify. It is not necessary to make changes in response to all comments, particularly if they are incorrect. However, it is necessary to provide strong reasons if no change is made. Either way, it is important to ensure that no comment is ignored.

A WORD OF ENCOURAGEMENT

Despite all the challenges, it is worth remembering that journals need papers, and that reviewers and editors are more often looking for papers to publish than to reject!

FURTHER READING

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