

Effective Medical Writing

Pointers to getting your article published

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Writing an invited review

ABSTRACT

An invited review provides a detailed and comprehensive narrative analysis of recent developments in a specific topic, and highlights important points that have been previously published. It usually consists of a short unstructured abstract, introduction, subheadings to organise the topic, and a summary. The text is usually relatively long compared to other paper categories, typically up to 15 manuscript pages or 4,000 words. The reference list is expected to comprehensively cover all the major published work, with up to 50–75 references being typical. The ideal invited review should be topical, current, balanced, accurate, quotable and easily understood, with clear take-home messages.

Keywords: invited review, medical writing, review article, scientific paper

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INTRODUCTION

An invited review, also known as a review article, consists of a detailed and comprehensive narrative analysis of recent or evolving developments in a specific topic. It serves to highlight important points that have been previously reported in the literature. Unlike an original article, this type of paper does not introduce new information, and unlike an invited commentary, it does not include the author's opinion or personal experience. Invited articles are also different from systematic reviews – this paper type will be addressed in the Effective Medical Writing series in the next issue of the Singapore Medical Journal.

Invited reviews are often favoured by journal stakeholders. From the editor's perspective, reviews are often the most widely read articles in journals and are likely to be cited. For readers, invited reviews provide a good update of a particular topic and are a convenient way of keeping a practising clinician or researcher current. For

the author, being invited to contribute an invited review is usually regarded as a distinct honour.

As its name implies, reviews are usually invited by the editor. Authors who are invited to provide a review article are acknowledged to have a particular expertise and extensive experience in that field. The authors are expected to provide a balanced article that puts the topic under discussion into the appropriate clinical and research perspective. Therefore, most authors would readily accept such an invitation. As these individuals often have heavy commitments, it is not unusual for them, ideally with the agreement of the editor, to act as senior authors and give the opportunity to a junior colleague to be the lead author in writing the manuscript for an invited review.

Some journals do not accept unsolicited reviews, while others would consider such submissions and perhaps subject them to a more rigorous peer review. Generally, unsolicited reviews are much less likely to be accepted compared to invited ones. For authors who wish to write an unsolicited review, it is advisable to contact the journal editor ahead of time with the proposed topic and content outline. The editor's preliminary response should give the author an idea of whether or not to proceed, and hence save the author from wasted time, effort and potential disappointment.

As invited reviews are one of the many types of articles that appear in medical journals, authors need to be aware of the specific requirements for their preparation. Most general medical and specialty journals do publish invited reviews, with their exact numbers being dependent on the vision of the editor and the mission of that particular journal. Several journals publish only invited reviews, such as the "Seminars", "Critical Reviews" and "Clinics of North America" series. Similar to all other manuscript types, the submitted manuscript for an invited review should also be constructed exactly according to the prescribed guidelines set by the target journal, which can usually be found in the journal's Instructions to Authors.⁽¹⁾ The authors should also be familiar with the journal readership, so that the invited review is tailored for the target audience.

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STRUCTURE AND CONTENTS OF AN INVITED REVIEW

Invited reviews should consist of the following headings: unstructured abstract, introduction, subheadings to organise the topic in a logical manner, and a summary. Unlike original articles, invited reviews do not follow the IMRAD structure of manuscript organisation. In preparing to write an invited review, it is good practice to begin by making an outline comprising the major topic subheadings. This outline may possibly be shown to the editor, and then modified and further refined following discussion and mutual agreement. For some journals, such an outline is published as a “table of contents” for the invited review.

Box 1. Structure of an invited review:

- Title
- Unstructured abstract
- Introduction
- Subheadings to organise material
- Summary
- References (extensive number)
- Illustrations (limited number)

A provisional title would often have been provided by the journal editor who has invited the review. If the author is unhappy with the title provided, he could ask for it to be altered. Generally, titles should be as concise as possible, and yet clearly convey the main purpose of the review. Sometimes, a provocative title, perhaps posed as a question, would attract wider readership, particularly if the topic is debatable or controversial.⁽²⁾ Some examples of invited review titles published in the Singapore Medical Journal over the past 15 months include:

- The anaesthetist’s role in the setting up of an intraoperative MR imaging facility
- Impact of the impact factor in biomedical research: its use and misuse
- Human bone marrow-derived adult stem cells for post-myocardial infarction cardiac repair: current status and future directions
- Pathological examination of the placenta: *Raison d’être*, clinical relevance and medicolegal utility
- Diagnosis and endoscopic resection of early gastric cancer

An unstructured abstract serves to provide a brief overview of the topic and conclusions. This is usually best written last, when the manuscript has been completed. It should be a clear and succinct summary of the important points and conclusions in the review. Abstracts for invited reviews typically consist of 75–300 words. In contrast to

other paper categories, the main text of an invited review is usually relatively long, and should follow a prescribed word limit, typically up to 15 manuscript pages or up to 4,000 words, with variations according to the individual journal’s Instructions to Authors. The introduction often includes the historical context of the topic and explains why the topic is important in current clinical or scientific practice. This aims to provide the background to the main body of the review which is to follow.

The main body of a review is usually organised into subheadings, which varies according to the nature of the topics being reviewed. Conventionally, subheadings for a clinical review paper may include aetiology, pathogenesis, clinical manifestations, investigative findings (including imaging and pathology), treatment and prognosis. Details of a specific procedure (e.g. indications, selection of appropriate patients, execution, complications), features of a specific condition, or strengths and weaknesses of the use of techniques, may be included.

Box 2. Examples of subheadings for the main text of invited reviews:

Example 1

Title: Artifacts in musculoskeletal magnetic resonance imaging: identification and correction [Authored by Peh WCG, Chan JHM. Published in *Skeletal Radiology* 2001; 30:179-91].

Subheadings:

- Introduction
- Motion artifacts
- Protocol-error artifacts
- Truncation artifacts
- Chemical shift artifacts
- Susceptibility artifacts
- Special artifacts
- Summary

Example 2

Title: Primary bone tumors of adulthood [Authored by Teo HEL, Peh WCG. Published in *Cancer Imaging* 2004; 4:74-83].

Subheadings:

- Introduction
- Imaging techniques
 - Radiography
 - CT
 - MR imaging
 - Bone scintigraphy
 - Image-guided biopsy
- Specific tumors by age
 - 20–30 years
 - 30–50 years
 - > 50 years

- Staging
 - Surgical stage of bone tumors
 - Grade
 - Site
 - Metastasis
 - Staging and limb salvage surgery
- Conclusion

Example 3

Title: Image-guided musculoskeletal biopsy [Authored by Gogna A, Peh WCG, Munk PL. Published in Radiologic Clinics of North America 2008; 46:455-73].

Subheadings:

- Introduction
- Preparation
 - Why must one perform this biopsy?
 - Indications and contraindications
 - Percutaneous or open biopsy?
 - When is it safe and appropriate to proceed?
- Technique and equipment
 - Preliminary preparation
 - Positioning
 - Route
 - Types of lesions/lesion characteristics
 - Needle types
 - Techniques
 - Does size matter?
 - Image guidance modality and biopsy techniques
 - Handling of specimens
 - Tips for successful biopsy
 - Expected results
 - Postprocedure routine
 - Complications
- Summary

The author should have critically assessed the available evidence. Papers that do not provide sufficiently useful information or evidence should be rejected. Any areas which are unresolved and which require further research should be specified, and how they might be best investigated may also be stated. Good reviews therefore provide a critical evaluation of the published literature as well as important conclusions based on published and reliable evidence. A short, clear and succinct summary should be provided at the end of an invited review, particularly for a long review. The reader should have a clear idea of what is known about a particular topic and what is yet to be known. Some journals include a box listing 3–7 take-home points that link back to the original questions that the invited review sets out to answer.

For an invited review, a large number of relevant

references are expected, typically numbering 50–75. These must be provided in the style of the journal. While a comprehensive list of references are required, those provided should be what the expert author judges to be the most important and pertinent to the topic. Including older references is recommended, particularly those that pre-date the era of electronic search programmes, to give acknowledgement to pioneering work so that others do not “re-invent the wheel”. Older articles are often better written than those produced more recently and may serve to put certain topics into historical perspective. As many researchers will use invited reviews as a starting point for literature review for their research, care should be taken to ensure that all references are accurately cited, particularly for online journals to ensure correct linking of referenced articles. Only those references that are easily accessible and retrievable should be used.⁽³⁾ Whether or not to include figures and tables, and the number allowed, depends on individual journal policy and the topic reviewed by the author. Typically, up to ten figures (or 24 figure parts) and up to four tables may be included.

Box 3. Common problems with invited reviews:

- Poor organisation of contents / irrelevant subheadings.
- Inclusion of the author’s personal views.
- Lack of critical evaluation of the available literature.
- Problems or unresolved areas not highlighted.
- Insufficient references.
- Inaccurately quoted references.
- No clear take-home message.

SUMMARY

An invited review should ideally be topical, current, balanced, accurate, quotable and easily understood, with clear take-home messages.

Box 4. Take-home points:

1. An invited review provides a comprehensive and detailed analysis of recent developments in a specific topic.
2. Important points from a thorough literature review without introduction of new information, a balanced discussion, and an accurate citing of relevant references, are expected.
3. The article should be easily understood with clear take-home messages.

REFERENCES

1. Peh WCG, Ng KH. Basic structure and types of scientific papers. Singapore Med J 2008; 49:522-5.
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3. Peh WCG, NG KH. Preparing the references. Singapore Med J 2009; 50:659-62.

SINGAPORE MEDICAL COUNCIL CATEGORY 3B CME PROGRAMME
Multiple Choice Questions (Code SMJ 201004A)

	True	False
Question 1. An invited review aims at:		
(a) Reporting up to ten interesting cases.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Describing a modification of a new imaging technique.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Briefly reporting on happenings at a medical conference.	<input type="checkbox"/>	<input type="checkbox"/>
(d) A comprehensive narrative analysis of recent developments in a specific topic.	<input type="checkbox"/>	<input type="checkbox"/>
Question 2. The components of an invited review include:		
(a) A structured abstract.	<input type="checkbox"/>	<input type="checkbox"/>
(b) A detailed results section.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Numerous figures, typically up to 50–75.	<input type="checkbox"/>	<input type="checkbox"/>
(d) A large number of relevant references, typically up to 50–75.	<input type="checkbox"/>	<input type="checkbox"/>
Question 3. The following statements about invited reviews are true:		
(a) They are often unsolicited and do not undergo peer review.	<input type="checkbox"/>	<input type="checkbox"/>
(b) They are seldom quoted.	<input type="checkbox"/>	<input type="checkbox"/>
(c) The teaching message is conveyed through high-quality images and accompanying legends.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Some journals publish only invited reviews.	<input type="checkbox"/>	<input type="checkbox"/>
Question 4. The following are common problems with an invited review:		
(a) Poor organisation of contents.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Lacks critical evaluation of the literature.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Inaccurately cited references.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Clear take-home messages.	<input type="checkbox"/>	<input type="checkbox"/>
Question 5. The ideal invited review is:		
(a) Authoritative.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Current.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Balanced.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Filled with the author's personal anecdotes.	<input type="checkbox"/>	<input type="checkbox"/>

Doctor's particulars:

Name in full: _____

MCR number: _____ Specialty: _____

Email address: _____

SUBMISSION INSTRUCTIONS:(1) Log on at the SMJ website: <http://www.sma.org.sg/cme/smj> and select the appropriate set of questions. (2) Select your answers and provide your name, email address and MCR number. Click on "Submit answers" to submit.**RESULTS:**(1) Answers will be published in the SMJ June 2010 issue. (2) The MCR numbers of successful candidates will be posted online at www.sma.org.sg/cme/smj by 5 July 2010. (3) All online submissions will receive an automatic email acknowledgment. (4) Passing mark is 60%. No mark will be deducted for incorrect answers. (5) The SMJ editorial office will submit the list of successful candidates to the Singapore Medical Council.**Deadline for submission: (April 2010 SMJ 3B CME programme): 12 noon, 28 June 2010.**