

ABSTRACTS RESTRUCTURED

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Every journal has instructions to authors wishing to submit their scientific papers for publication. Journal editorial policy is not standardised throughout the world even if one were to consider only the English language journals.

Every article should aim to answer Bradford Hill's questions: Why did you start? What did you do? What answer did you get? What does it mean? What are you going to do next? Once the study is underway, then completed, the data are analysed and a paper is written. Authors should consider beforehand which journal the paper is likely to be submitted to. Only then can the paper be profitably written in the correct style. Different journals have different styles. But hopefully some uniformity will be the norm in the near future, at least for the major important international journals. There exists an International Committee of Medical Journal Editors which was formed in 1978-1979 after a meeting in Vancouver, British Columbia. This Committee decided on uniform technical requirements for manuscripts to be submitted to their journals⁽¹⁾.

International Committee of Medical Journal Editors

In 1982, over 150 journals agreed to receive manuscripts prepared in accordance with these requirements and the original document detailing these style matters has since been revised three times, the fourth edition appearing in 1991^(2,3). To date over 400 journals subscribe to this uniformity of style and this journal is one of them.

At the beginning of each year, the Singapore Medical Journal publishes as an Editorial Notice, instructions to authors wishing to submit manuscripts for publication⁽⁴⁾. Emphasis has been on the organisation of the papers with headings and proper referencing. The manuscript should be set out as follows: title page, abstract, text, acknowledgements, references, tables and legends for illustration.

For abstracts, the requirement is that it should be of 100-250 words for major articles and 50-100 words for case reports and short articles. Further, up to five keywords or short phrases are needed⁽⁴⁾. The International Committee of Medical Journal Editors in its fourth edition on manuscript requirements⁽³⁾ states that the abstract should be no more than 150 words for unstructured abstracts and 250 words for structured abstracts.

The Structured Abstract

No worthwhile piece of writing for publication is unstructured. Editors stress that in writing the abstract, the purpose of the study or investigation, the main findings and the principal conclusions must be stated. Emphasis should be given to new

and important aspects of the study or observations. This advice held true up to the third edition of Style Matters of the International Committee of Medical Journal Editors published in 1988⁽⁵⁾. But this changed in 1991⁽³⁾.

Why the Structured Abstract?

Proposals for the structured abstract began in 1987⁽⁶⁾. Medical literature is increasing at a phenomenal pace and most readers are content to read a paper's title and abstract. The abstract then has a pivotal role in being able to stand on its own as a packet of information. What more, with on-line data bases where only the title, authors' names, bibliographical details and the abstract are supplied.

Around 100,000 scientific journals are published worldwide each year. Only a fraction of the journals are ever read. The medical profession is suffering from an overkill. Many journals are "uncited, unread and unprofitable"⁽⁷⁾. This was stated at a recent Royal Society Conference on the future of health care by an expert in health information technology. Of 3,000 journal titles in the Allen Memorial Medical Library in Cleveland, Ohio, only 300 were looked at in one month and only 120 were looked at frequently.

This means patients suffer because doctors although mystified by their ailments do not turn to the vast amounts of research that might help in diagnosis and treatment. Hopefully structured abstracts will prove easier for readers to extract information they desire, and for authors to put their messages across more effectively.

Structured abstracts are "designed to permit clinical readers of medical journals to judge quickly the applicability and validity of the findings of an article for clinical practice according to some principles of common sense and science that have been widely disseminated for critical appraisal of the medical literature and tested for this educational value"⁽⁸⁾. Additional purposes include guiding authors into summarising more explicitly the contents of their articles, aiding peer reviewers of articles to render critical judgements and to allow more precise computerised literature searches such as MEDLINE.

The structured abstract is one strategy for more efficient and accurate, critical appraisal of articles. It allows readers to extract the most pertinent and definitive studies from the rest.

What is the Structure?

There are two structures required - one for original articles and the other for review articles. Either abstract should keep to within the 250 words limit.

For original research there are eight headings. These are: objective - the exact question(s) addressed by the article; design - the basic design of the study; setting - the location and level of clinical care; patients or participants - the manner of selection and number of patients or participants who entered and completed the study; interventions - exact treatment or interventions; if any; main outcome measures - the primary study outcome measure as planned before data collection began; results - the key findings; and conclusions - key conclusions

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including direct clinical applications.

For review articles, there are six headings. These are: purpose - the primary objective of the review article; data sources - a succinct summary of data sources; study selection - the number of studies selected for review and how they were selected; data extraction - rules for abstracting data and how they were applied; results of data synthesis - methods of data synthesis and key results, and conclusions - key conclusions, including potential applications and research needs.

Experience To Date

The structured abstracts were first introduced in 1987 in the *Annals of Internal Medicine*⁽⁹⁾, with authors participating voluntarily. Since then some journals have followed suit and these include *Chest*⁽¹⁰⁾, *British Medical Journal*⁽¹¹⁾, *Journal of General Internal Medicine*⁽¹²⁾, *Journal of Paediatrics*⁽¹³⁾, *Gut*⁽¹⁴⁾ and *Journal of Clinical Pharmacology*⁽¹⁵⁾ up to 1990. Recently the *New England Journal of Medicine* has also participated. Detailed instructions on how to prepare a structured abstract have been published^(8,9).

Feedback on the acceptability of the structured abstract is positive. Structured abstracts have been hailed as “of very great help in the business of communication”⁽¹⁶⁾. The US National Library of Medicine has included structured abstracts in the MEDLINE file without modification or truncation despite the increased length⁽¹⁷⁾. It has been both complimented and criticized for making reading of the rest of the article unnecessary. More studies are required to confirm if structured abstracts have met the three primary objectives of informing clinical reader better, improving on-line search retrieval and facilitating peer review.

A study on the use of MEDLINE in clinical settings found that clinical decisions were often influenced by abstracts alone without recourse to the full text of the articles⁽¹⁸⁾. This makes it imperative that authors and editors pay more attention to the abstracts of papers they publish.

Conclusion

After having reviewed the available literature on structured abstracts since the inception in international journals in 1987, the past five years of experience have shown them to be simple for authors and journal editors to implement. Furthermore, it provides a valuable service for clinical readers. Presently the *Singapore Medical Journal* accepts abstracts written in the traditional *laissez-faire* way. What is frowned upon is a sentence like “The results will be discussed” appearing in the abstract. The abstract should be so written as to be able to stand alone in its scientific merit without compulsory reference to the original total text. Gone are the days when the synopsis or summary of an article served the function of being an appetiser to the main course. The abstract today is to serve as a small, compact but complete scientific package where each and every one of the 250 words carries its own weight in gold.

The unstructured abstract is to be dispensed with. The structured abstract without headings may be acceptable for a short while yet, but being based on the presumption that readers prefer to read the entire abstract rather than skim it for information that is of particular interest, its days may be

numbered. All doctors suffer from NETS (not enough time syndrome) and while doctors strive for computer literacy so that at least they would know how to use computer based searches for medical information, the signs are there that a properly structured abstract is the way to overcome the mountains of data of our era where academics and doctors have the “publish or perish” mentality.

It is the fad today to do things better under the name of restructuring. As such I have entitled this, “abstracts restructured” so as not to imply that present abstracts submitted to this journal have no structure, but rather that the structure can be further strengthened and identified by the definition of the six or eight required headings. Expose the vital nuggets your research has uncovered. Hide them not in the mass of words.

In their paper in 1990⁽⁸⁾ the authors note “We call on all editors of biomedical journals that cater to clinical audiences to consider implementing this proposal”. This proposal refers to structured abstracts. The *Singapore Medical Journal* starting in 1993 welcomes and encourages all authors to abstract their papers using structured abstracts for articles of clinical interest. This policy will henceforth be reflected in the *Journal's* Editorial Notice.

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