

Structured Abstracts for Papers Reporting Clinical Trials

NO EXPERIENCED editor believes that readers of his or her journal go through each issue article by article, word by word. Some readers probably scan tables of contents, decide what articles if any merit their further attention, and scan titles and abstracts of selected articles; for these readers, authors and editors should take pains to supply titles and abstracts that represent content as accurately and as fully as space permits.

Editors certainly take responsibility for the quality and importance of papers they select to publish; they have no less responsibility for the quality of abstracts. But in the press of daily work an editor can let slip into print inadequate abstracts. Can authors be helped to write abstracts that provide critically important evidence?

Not many decades ago research papers usually did not have the obvious formal structure they have today. They were likely to have a narrative or chronologic structure taken from the sequence of the reported research. But the important elements of critical argument, the basic intellectual structure of research papers (1), did not always stand out clearly and were infrequently labeled as sections with specific elements of argument. Gradually the explicit "IMRAD" structure appeared: Introduction, Methods, Results, (And), Discussion. IMRAD spread into wide use, probably in large part because editors insisted that papers be formatted clearly for the convenience of readers. Can we similarly develop a format for abstracts that will make explicit their elements of critical argument?

About 2 years ago R. Brian Haynes, a member of the Department of Clinical Epidemiology and Biostatistics, McMaster University, discussed with me his interest in developing a feature for this journal that would help our readers critically judge papers for validity and applicability of their conclusions. His interest arose from his long engagement at McMaster in teaching how to read journal articles using critical judgment. He proposed that we publish, with selected papers, critical assessments based on the principles members of his department laid out in a series of papers published in the *Canadian Medical Association Journal* and subsequently reworked for a textbook, *Clinical Epidemiology* (2).

Our Editorial Board and the editors discussed Dr. Haynes' proposal at length. Various considerations, some tactical, some practical, led to our deciding not to put that proposal into effect. But *Annals'* editors agreed fully on the importance of the basic intent of the Haynes' pro-

posal: making explicit the elements in papers critical for judging their validity and importance. Was there some other way to serve this intent?

About 20 years ago an article (3) in *Karger Gazette*, the newspaper published by the Swiss firm, S. Karger AG, pointed out that abstracts all too often lack details that many of their readers need. The solution proposed by Ertl, the author, was to put abstracts into a tabular format, with all the details needed to represent important content of papers appropriately grouped in labeled sections. His article suggested possible formats for various kinds of medical papers, experimental and clinical. His examples showed clearly that the shift from the conventional abstract with running text to the tabular format would allow for more detail, with clearer indications of the main structural components of papers. Ertl's proposal seems not to have been put to use by any journals, perhaps because abstracts in that format might take more space than conventional 150- to 250-word abstracts, and aesthetic considerations favored the short form.

As we continued to discuss Dr. Haynes' proposal, it occurred to me that much of the intent in his proposal might be reached through using Ertl's general principle. After lengthy discussion among our statistician, Dr. Haynes and his associates, and me, Haynes agreed to draft a detailed proposal for this approach and to have it reviewed widely by persons strongly interested in conveying information accurately and efficiently. The product of this work appears in this issue, "A Proposal for More Informative Abstracts of Clinical Articles" (4). The colleagues and many key persons in other institutions Dr. Haynes asked to consider the soundness and adequacy of his proposal are collectively designated as an ad hoc working group in the authorship byline.

The proposal is limited to abstracts reporting preplanned clinical investigations. This limit was set deliberately. Papers properly structured to report clinical trials and other planned clinical investigations usually follow the format widely used for papers reporting other kinds of experimental studies: a hypothesis to be tested, or a question to be answered, is posed (Introduction); the design and methods used in the study are described (Methods); the findings in the study are described and related to the hypothesis or question for a tentative conclusion (Results); the validities of the findings, additional supporting evidence, and any counterevidence are weighed for a final conclusion (Discussion). Authors who take

seriously their responsibilities to clinical audiences will usually close their Discussions by assessing the extent to which their findings may be valid for patient populations other than that sampled in the reported study. This structure can be readily represented by text headings within the abstract, such as those proposed by Haynes. His paper illustrates his proposal by comparing a conventional abstract (of a paper already published in this journal [5]) with an abstract for the same paper structured and written in accord with the proposed principles.

In an effort to support this proposal with additional examples of its use, we asked the authors of two other papers also scheduled for this issue to rewrite their abstracts in the structured format (6, 7). These abstracts can be seen on pages 497 and 503. Clearly these abstracts are longer than our usual limit of 150 words, but we believe that their greater clarity and detail justify the greater length. Requests to authors of papers reporting clinical trials to rewrite their abstracts in this format are now part of our editorial procedure. We urge authors of papers reporting clinical trials who plan to submit them for consideration by *Annals* to prepare their abstracts in this format.

With the clear formal structure in most clinical trials, the papers reporting them can be readily summarized with such structured abstracts. Whether formal structures can be developed for the abstracts of other kinds of papers remains to be seen. I believe that a structure may be relatively easy to develop for abstracts of review articles; the possibilities for structured abstracts for case reports are less clear. The editors of this journal will welcome proposals for structured abstracts for additional kinds of papers, and we shall publish any such proposals that seem to have substantial merit.

We will welcome comments on the proposal from the ad hoc working group. We believe that structured abstracts will not only serve needs of readers and searchers of online bibliographic databases better than the present conventional abstracts but will force authors to make clearer and more detailed statements summarizing what they report. Ultimately, structured abstracts may help to make designers and executors of clinical trials more aware of the vital elements of study design for trials likely to yield valid and useful conclusions. (EDWARD J.

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