maceutical clinical trial research. If the newly proposed clinical laboratory data interchange model is to be successful, it must meet the needs of all laboratories involved in supporting clinical trials.

**Reference**


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**Proposal to Add an Optional Recommendations Section to Clinical Chemistry Abstracts**

To the Editor:

This journal uses a structured abstract with the topic headings Background, Methods, Results, and Conclusions. This format or a similar one is widely used by medical journals and facilitates comprehension (1).

Among other possible topic headings is Recommendations. This heading would improve the effectiveness of abstracts by more clearly representing article content and by highlighting advice in the cases when it is appropriate.

**Conclusions** are different from Recommendations. Conclusions are a concise summary of the results based on the data. Recommendations are advice given to the reader based on the conclusions. To illustrate the difference between these two terms, consider a recent article about glucose meters (2). In the abstract, the first sentence under Conclusions is a conclusion: “The analytical quality of SMBG [self-monitoring of blood glucose] among patients was poorer than, and could not be predicted from, the performance of the meters in the hands of a technician”. The next and final sentence is a recommendation: “We suggest that new instruments be tested in the hands of patients who are trained on meter use in a routine way”. Similar pairs of conclusion and recommendation sentences can be found in articles about thyroglobulin measurements (3) and human chorionic gonadotropin methods for detection of pregnancy (4).

I have suggested a format for reports in industry that describe the outcome of experiments (5). The format is similar to the Clinical Chemistry format but includes Recommendations as a required topic heading. I reason that the reader wants to know not just what was found, but what should be done. This report format has been used by many authors and has benefited readers, who have told me that they could quickly see what the recommended action was, rather than having to hunt for this information within the body of the report or, worse, try to infer a recommendation if one were absent.

Stating a recommendation can be intimidating to the person writing the report because the advice behind a recommendation might be wrong, challenged, ignored, or even be at odds with the conclusions. Authors may be tempted to “let the conclusions speak for themselves”. When no recommendation is provided, many recommendations might be reached from a conclusion. Consider the glucose meter article again. There is no guarantee that readers would have synthesized the findings and other factors to reach the authors’ recommendation, had the authors not provided it.

As there is no required Recommendations section in Clinical Chemistry abstracts, it is not surprising that most abstracts do not have recommendations. Sometimes a recommendation is stated in the Discussion section but not in the abstract. This is unfortunate as potentially important advice may be missed by the reader. The most common recommendation found in a review of recent articles in Clinical Chemistry (often buried in the Discussion section of the article) could be paraphrased by: “This study should be validated with a larger sample size”. This is a perfectly reasonable recommendation whose frequent occurrence is understandable because many published studies are preliminary. Thus, the advice to validate the results with a larger study is provided as a recommendation, partly to avoid allowing the reader to construct another recommendation from the conclusions, such as “Change the practice of medicine by . . .”.

A suggestion of action to be taken may represent the highest level of information content for an article. Moreover, providing an optional Recommendations section for authors may stimulate more thought about appropriate action. Although recommendations could continue to be an optional part of the Conclusions section, having a separate, optional Recommendations section would make it easier for the reader to see when advice is given in an article.

Because of the potential advantages, it is suggested that the “Information for Authors” include an optional Recommendations section in the abstract. If authors provide recommendations in the Discussion section of the body of the article, then a Recommendations section would be required to ensure that these recommendations also appear in the abstract.

**References**


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