

Data Inconsistencies in Abstracts of Articles in *Clinical Chemistry*

To the Editor:

The abstract of a research article is considered to be the most important part of the article. It should contain, in a brief but concise form, the critical components of the scientific study being reported. It often is the only part of the article that is read and is widely available through biomedical databases. Thus, it is of fundamental importance that data reported in abstracts are consistent with those reported in the body of the article. Recent studies have reported that data in abstracts sometimes are inconsistent with those reported in the article (1–3). The aim of this study was to determine the abstract data inconsistency rate of *Clinical Chemistry*.

All articles published in *Clinical Chemistry* over 6 months from January 2000 that contained data in the abstract were checked against the corresponding data reported in the article, including tables and figures. Data inconsistencies were classified as either data in the abstract being different from the data presented in the body of the article or the absence from the article of data presented in the abstract.

Of 87 articles, 20 articles (23%; 95% confidence interval, 11–35%) contained data in the abstract that were inconsistent with those reported in, or absent from the article. Approximately two-thirds of the inconsistencies were data in the abstract being different from those in the article, whereas approximately one-third of inconsistent abstracts contained data that were not given in the article. Of the 20 abstracts with data inconsistencies, 10 contained two data inconsistencies, whereas 3 each contained three, four, and five data inconsistencies.

The majority of data inconsistencies were minor. For example, one abstract reported the preliminary 0.95 reference interval for α -amylase as 33.6–96.2 U/L in adults, whereas in the article the 0.95 reference interval was reported as 33.9–96.2 U/L (4). However, some data inconsistencies were more substantial. Garcia-Barceló et al. (5) report in the abstract

that CYP2D6*10/CYP2D6*10 was the most frequent genotype in 46.22% in a Hong Kong Chinese population, whereas in the article a frequency of 41.17% was reported.

Apart from the title, the most frequently read and quoted part of an article is the abstract. It is therefore imperative that the data in abstracts are accurate and consistent with those reported in the article. Previous studies on the quality of published articles have focused on quotation and reference accuracy (6, 7). It has only recently been shown that the data in abstracts can differ from those reported in the body of the article (1–3). It is not known, from previous studies or the present study, which data are correct.

Following their initial study, which found abstract data inconsistency rates ranging from 18% to 68% in six medical journals (1), Pitkin and Branagan conducted a randomized controlled trial of submissions of original research manuscripts to *Obstetrics & Gynaecology*. Eligible manuscripts returned to authors either did or did not include instructions stating the importance of abstract accuracy and identifying three commonly found types of errors. Returned manuscripts were checked at the editorial office for data inconsistencies between the abstract and the article. In the intervention group, 28% of abstracts were inconsistent, compared with 26% in the control group (2). Thus, providing specific instructions to authors did not appear to be effective in reducing abstract data inconsistencies.

The *Journal of the American Medical Association (JAMA)* developed and implemented abstract quality-control procedures in 1998 that included the criterion that data in abstracts should be consistent with corresponding data in the text, tables, or figures. Pitkin et al. (8) assessed the effectiveness of this initiative. In a masked pre- and postintervention sample analysis, they found that the JAMA quality improvement procedures improved abstract quality, in particular correcting situations where data reported in the abstract were initially omitted from the article.

Following a study in which 29.4% of abstracts over a 5-year period

were found to contain data inconsistencies, the *New Zealand Journal of Medical Laboratory Science* now asks referees to include a check of the abstract of submitted manuscripts for inconsistencies (3). Preliminary results have shown that such inconsistencies can be detected by this policy (unpublished observations).

In conclusion, approximately one-fourth of articles published in *Clinical Chemistry* in the first half of 2000 contained data in the abstract that were inconsistent with those reported in the article. The primary responsibility should be on authors to ensure accuracy of abstracts, although the literature suggests that educational intervention directed to authors is ineffective. Editors and referees may have to be more diligent in detecting abstract data inconsistencies.

References

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Editor's Note: Readers of abstracts are encouraged to consult the full-text *Clinical Chemistry*, which can be accessed by a mouse click from the abstracts at Medline.