

Data in abstracts of research articles. Are they consistent with those reported in the article?

It has been known for some time that references in published research articles in the biomedical literature frequently contain errors or are misquoted.^{1,2} However, it is only recently that attention has focused on abstract accuracy. Pitkin and colleagues studied six leading medical journals (*Annals of Internal Medicine*, *British Medical Journal*, *Journal of the American Medical Association*, *The Lancet*, *New England Journal of Medicine* and *Canadian Medical Association Journal*) and found that data in abstracts were inconsistent with, or absent from, the article's text, tables or figures in 18% to 68% of these journals.³ Studies in other medical journals (*Obstetrics & Gynecology* and *New Zealand Medical Journal*) have found similar abstract inconsistency rates.^{4,5} Two studies in specialist medical laboratory journals have also shown an unacceptable rate of abstract data inconsistency (*New Zealand Journal of Medical Laboratory Science* and *Clinical Chemistry*).^{6,7} Here, the abstract data inconsistency rate in original articles published in the *British Journal of Biomedical Science* (BJBS) is determined.

All original articles with abstracts containing data published during 2001 in BJBS were studied, and 22 met the criteria for inclusion. Data in the abstract were checked against corresponding data in the main body of the article, including figures and tables. Abstracts were deemed inconsistent if they contained data in the abstract inconsistent with corresponding data in the main body of the article, or contained data not reported elsewhere in the article. The abstract inconsistency rate was calculated, together with the 95% confidence interval (95% CI).

Nine out of 22 articles had abstracts deemed inconsistent according to the criteria – an abstract data inconsistency rate of 40.9% (95% CI: 18.6 – 63.2%). Of the nine articles, five contained data in the abstract that were inconsistent with corresponding data in the main body of the text, two contained data in the abstract that were absent from the main body of the text, and two showed both types of data inconsistency.

Most abstract data inconsistencies were minor. For example, Zhang and colleagues⁸ report in their abstract that '...were assigned randomly into a CS-866-treated group ($n=17$)...or into a control group ($n=15$)...' However, in the text (and in Table 2) the CS-866-treated group and control group were reported as $n=15$ and $n=17$, respectively. The danger here is that what is obviously a data error in this abstract may be cited in future articles unless the article is read carefully and the error noted.

As abstracts of research articles in the biomedical literature are widely available through literature databases, they are

often the only part of the article that is read. Thus, it is essential that data in abstracts are both accurate and commensurate with that reported in the main body of the text.

This study has shown that a high number of articles published during 2001 in BJBS contained data in abstracts that were either absent from the article or inconsistent with that reported in the article. The abstract data inconsistency rate of 40.9% in this study is higher than the 23.0% and 29.4% found in two other laboratory science-based journals (*Clinical Chemistry* and *New Zealand Journal of Medical Laboratory Science*, respectively),^{6,7} however, abstract data inconsistency rates vary from 18% to 68% in general medical and medical specialty journals.³⁻⁵

It is unclear why such data inconsistencies occur but the prime responsibility for accuracy lies with authors. Pitkin and colleagues conducted a controlled randomised trial by giving or not giving authors of potentially acceptable articles in *Obstetrics & Gynecology*, at the revision stage, an instruction sheet that emphasised the importance of accurate abstracts and listed three types of potential error. The results were disappointing. Authors given the instruction sheet returned 28% inconsistent abstracts compared with the 26% returned by authors not given the instruction sheet.⁴ In light of these disappointing results, editorial staff at a leading medical journal (*Journal of the American Medical Association*) developed and implemented 11 abstract quality criteria standards. Pitkin and colleagues studied the effectiveness of this editorial intervention and found a decrease in abstract inconsistency rate from 52% to 20%.⁹

In conclusion, many abstracts of original articles published in BJBS contain data that are either not reported elsewhere in the article or are inconsistent with that reported in the main body of the text. With regard to the latter, generally it cannot be determined whether it is data in the abstract or in the article text that is inaccurate. Primarily, it is the authors' responsibility to ensure that all data, both in the abstract and the article text, are accurate. However, as this study and others have shown, many abstracts of published articles in the biomedical literature contain data inconsistencies. Let the reader, editor and reviewers be aware. □

Robert Siebers

Department of Medicine

Wellington School of Medicine and Health Sciences

PO Box 7343

Wellington South

New Zealand

Email: rob@wnmeds.ac.nz

References

- 1 De Lacey G, Record C, Wade J. How accurate are quotations and references in medical journals? *BMJ (Clin Res Ed)* 1985; **291**: 884-6.
- 2 Siebers R, Holt S. Accuracy of references in five leading medical journals. *Lancet* 2000; **356**: 1445.
- 3 Pitkin RM, Branagan MA, Burmeister LE. Accuracy of data in abstracts of published research articles. *JAMA* 1999; **281**: 1110-1.
- 4 Pitkin RM, Branagan MA. Can the accuracy of abstracts be improved by providing specific instructions? A randomized controlled trial. *JAMA* 1998; **280**: 267-9.
- 5 Siebers R. Data inconsistencies in abstracts in the *New Zealand Medical Journal*. *N Z Med J* 2002; **115**: 57-8.
- 6 Siebers R. How accurate is data in abstracts of research articles? *N Z J Med Lab Sci* 2000; **54**: 22-3.
- 7 Siebers R. Data inconsistencies in abstracts of articles in *Clinical Chemistry*. *Clin Chem* 2001; **47**: 149.
- 8 Zhang B, Fan P, Tanaka H, Saku K. Angiotensin II type-1 receptor antagonist, CS-866, reduces blood pressure without affecting glucose/insulin metabolism in cholesterol-fed rabbits. *Br J Biomed Sci* 2001; **58**: 217-25.
- 9 Pitkin RM, Branagan MA, Burmeister LE. Effectiveness of a journal intervention to improve abstract quality. *JAMA* 2000; **283**: 481.