

Reviewer's report

Title: Inaccurate rounding of statistics in medical papers

Version: 1 **Date:** 21 February 2004

Reviewer: V A Ferraris

Reviewer's report:

General

The manuscript by Garcia-Berthou and Alcaraz documents the occurrence of errors in reporting data in the medical literature. They suggest that as many as 12% of literature articles may contain errors in data reporting with a smaller proportion of articles have errors that may be important for purposes of statistical inference.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

While I agree with the authors' premise, their observations are neither novel nor scientifically complete. I am surprised that they do not delve into the statistical errors more completely. They found that 11.6% of computations in Nature were inconsistent, but did not define the types of inconsistencies that were found. Perhaps a table of error/inconsistency types would be helpful to the reader. A clearer focus on errors that make a difference in the types of inference made by authors of the various articles would be helpful. Are these mostly typesetting errors or proofreading errors? Were there any articles in which the inferences were entirely different or dramatically changed by the inconsistencies identified by the authors? The authors suggest that the conclusion would change from significant to nonsignificant in only about 4% or 1 in 27 articles. Where does the number 27 come from? My calculations suggest that there were 36 (21 + 12 + 3) articles that contained errors, so I am confused about the number 27 that appears in the next to the last paragraph of the RESULTS section. The authors seem to be guilty of the same imprecision of which they accuse others.

I am a little confused by some of the authors' results. In the 3rd paragraph of the RESULTS section, the authors claim that over 25% of the papers contained errors, yet the 1st paragraph indicates that 11.6% of the 181 articles in Nature contained inconsistencies. I suspect that the 25% number includes errors in documentation (non-exact P values, incorrect precision, etc.) as well as inconsistencies. If this is correct, the authors need to clearly demarcate their terms. How many articles contained errors of any sort? What types of errors were documented by the authors? How important were these errors in the conclusions of the various articles?

The section on digit preference is hard for me to understand. Are the authors suggesting that errors in rounding occur because of digit preference? Are the inconsistencies that they report related to digit preference? I suspect that the authors can not answer this question and there is little value added to the manuscript by the inclusion of the section on digit preference.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes

Declaration of competing interests:

None